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SOME OBSERVATIONS ON CESAREAN SECTION

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Cesarean section obtained no real recognition by the profession till after the era of aseptic surgery. Even then, for many decades, the mortality was so high that it was considered only as a last resort. Only within comparatively recent years has the procedure been recognized as having a broad field of election. This has been brought about by improved methods of operative technic and improved after care of the patient. Even as late as 1912, in the New York Lying-in Hospital 256 cesarean sections out of 68,200 maternity cases showed 14 per cent maternal and nearly 13 per cent infant mortality. This about fairly represents the best results of splendid hospital facilities of that date. Naturally the morality, both maternal and infant, was much greater outside of the large centers of population. At the present date the maternal mortality has been reduced to between two and four per cent. Thus the value of this operation has been greatly enhanced and its field of election widened.

Over twenty different cesarean section operations have been devised. Of these only five have survived. These five are:

(1) The classical cesarean section which dates from at least 140 B. C. and is probably much older than that.

(2) The cervical cesarean section per vagina. This operation, in some form, is probably as old as the classical operation. This operation is fast going into the discard. It is only very rarely of value and then of very questionable choice.

(3) Cervical cesarean section by the abdominal route. This operation was devised, much as it is today, and practiced by Oseander in 1805. This being long before the era of asepsis, the mortality was prohibitive and the operation was abandoned. In comparatively recent years this operatoin was revived by Kronig. DeLee and others modified and popularized it in America. DeLee has very aptly termed the operation "laparotrachelotomy."

(4) The Porro cesarean section. This operation is the classical operation plus the removal of the uterus after delivery of the child. Porro introduced this operation in 1877 to obviate the high maternal mortality from hemorrhage at that date. The uterus was removed after each cesarean section. It was quite popular for a while, but fortunately was soon superseded by Sanger's technic in which the uterus was spared. When the uterus must be removed for cancer, fibroids. sepsis, or any other necessity, the Porro operation is the best treatment. The uterus is removed by the ordinary hysterectomy after delivery of the child. The tubes and ovaries should be saved if practicable.

(5) The extraperitoneal cervical cesarean section of Latzko. In this operation the uterine cervix is opened and the child is delivered in the same way as by DeLee's "laparotrachelotomy." The only difference in the technic is the approach to the cervix. The peritoneum is not opened as in laparotrachelotomy, but the cervix is exposed by pushing the vesico-uterine peritoneal fold upward and the bladder is separated from the cervix and pushed downward, thus exposing the cervix. This operation by not opening the peritoneal cavity is of use in septic cases only. The technic is more difficult and, even in septic cases, is of only doubtful superiority to the DeLee technic. This, because the latter operation may be made, in effect, extraperitoneal by suturing the abdominal peritoneum before the cervical section is made.

In studying these five operations you will find that with the exception of the very unusual case, the

classical and the cervical operations will meet the demands of all cases. Comparison of these two operations convinces the student that the classical operation will become less and less useful as the cervical operation becomes more familiar to surgeons. In the first place the cervical operation is safer. This is shown by actual statistics. For this operation DeLee reports a series of 620 cases with a maternal mortality of only six. He does not give the infant mortality in this series. The classical operation shows a two per cent maternal mortality, and almost no mortality for viable infants.

Second, the cervical operation is easiest to perform after the woman has been in strong labor. This affords a chance for a trial labor—a great advantage for frequently a woman may be delivered safely when conditions looked most unfavorable at the beginning. Exactly the opposite is true of the classical operation. Every hour after the woman is in strong labor makes the classical section more dangerous.

Third, the cervical operation is four times as safe from a ruptured uterus during pregnancy and at delivery of the next baby. The only objections to the cervical operation are that the baby must be delivered through a smaller incision and is therefore slower. Forceps are usually required to deliver the head through the incision. This makes the danger to the baby slightly greater than by the classical method, which is the safest of all methods for the baby.

In a long surgical experience I have performed nineteen cesarean sections. In this series there were two maternal deaths. Three babies were dead in utero at operation but were supposed to be alive when cesarean section was decided upon. One seven months' baby, whose mother was suffering from eclampsia, died five hours after birth with all the symptoms of eclampsia. This baby at delivery was apparently in good condition.

The following are records of the two maternal deaths:

CASE I. A primipara, age 30, who had been in labor for 72 hours. High forceps, version and several other methods of delivery had been tried without success. On entering hospital patient was profoundly septic and had a temperature of 103 and a pulse of 120, but the baby was still supposed to be alive. Cesarean was done at once but the child was found dead. The mother died 72 hours later of sepsis and anuria.

CASE II. A primipara of 20 and in labor 24 hours when she was brought from 50 miles in the country to the hospital. She had a contracted pelvis so that natural delivery was hopeless. A low cesarean was done with the uterus in situ. Unfortunately the uterine incision went nearly directly through the center of the placenta. Hemorrhage was profuse but was quickly controlled and a normal healthy child delivered. The uterus not being delivered from the abdomen, no other incision could be made except through the placenta. In spite of this there was probably no more blood lost than during a natural delivery, and otherwise there was not a hitch in the entire operation. This patient went to bed in good condition but had a high temperature on the second day and in spite of everything that could be done at the time, died of sepsis on the fifth postoperative day.

This was many years ago and had I then been familiar with cervical cesarean section, the patient would probably have made a safe recovery. Two maternal deaths in nineteen cases is a high mortality, but when it is considered that all these cases, except three, were emergency cases, the results are possibly not so bad. The first case was hopelessly septic and exhausted at time of operation. Further, many of these cases were brought into the hospital from the country, having been moved from twenty to one hundred miles.

It will be noted in the second case that the incision went nearly through the center of the placenta. One other case in which the placenta was widely divided, made a stormy recovery and alarmed me considerably for three days after operation. All the rest of the cases made easy recoveries and went home within two weeks, with one exception which was in the hospital two and one-half weeks. Naturally the placenta was on other occasions more or less marginally cut. In my cases placenta injury in relation to post-operative recovery has been impressive. Every case in which there was no placental injury had a normal easy post-operative recovery.

In my opinion, cutting through the placenta is the most dangerous feature of the entire operation. Hemorrhage is very profuse, and on first experience is quite alarming, but really is quite easily controlled. Nevertheless the severed uterine wall over the placenta site is as bad an area to suture as the luckless operator could have thrust upon him. The numerous and enormous venous sinuses overlying the entire placenta area are potential avenues of infection from the necessarily penetrating sutures. Therefore the least possible infection may be disastrous.

In twelve of my nineteen cases the placenta was situated on the anterior wall of the uterus. DeLee cites a series of cesarean sections in which the placenta was similarly located in 42 out of 67 cases. Other statistics seem to verify these. Thus in nearly two out of every three cases the placenta is so situated that the classical section of the anterior

uterine wall will go through a greater or lesser extent of the placenta.

The attachment of the placenta is least frequent at the fundus and at the cervix. Therefore the safest areas to open the pregnant uterus are at the fundus and at the cervix.

The classic cesarean section may be done in one of two ways:

First, as the operation is most generally done, through a median incision between the pubes and the umbilicus. The uterine section must then be made in the midline of the anterior uterine wall. Nearly two times out of three this incision cuts the placenta to a greater or lesser extent, as shown above. With this incision it is difficult to wall off the uterus from the general peritoneal cavity. Thus when the spill of the amniotic fluid comes from opening the amniotic sac, it is extremely difficult to prevent soiling the general peritoneal cavity. Even when the amniotic sac is only opened by a small button hole incision and the amniotic fluid is drawn off by a suction machine, there is still apt to be a considerable "spill," and soiling of the general peritoneal cavity is likely.

Second, the abdominal incision is made large enough to deliver the entire uterus from the abdominal cavity. The abdominal cavity is then easily and perfectly walled off from the uterus. This is perhaps most efficiently done by a small thin rubber sheet and several sterile bath towels. I then open the uterus through a small buttonhole incision. This incision is made very near the fundus in the midline. The incision is made down to the amniotic sac but not through it. The sac is readily recognized by its yellowish gray color in marked contrast to the uterine musculature. An exploring finger is then quickly slipped between the sac and the uterine wall and the placenta located. In this way cutting the placenta is avoided. I prefer to carry the incision down the posterior wall of the uterus rather than divide the placenta. This second technic gives almost no hemorrhage and affords the easiest and most efficient closure of the uterus.

It is generally said that this method of doing the classical operation causes much more shock to the patient than where the uterus is left in situ. I have not found it so. When occasionally the baby has been difficult to resuscitate I have laid the baby across the mother's lap and have not allowed the placenta to separate from its uterine attachment till the child is safely resuscitated. After the baby is safely resuscitated, the cord is then cut. Usually this requires only a minute or two, but I have waited in one case as long as twenty minutes for the child to revive. Even with such delays as this, I have noticed no increased evidence of shock. Shock here is the result of hemorrhage and trauma, as it is in nearly all surgical operations.

It is also frequently stated that the classical operation, however done, is followed by adhesions of the uterus to the abdominal wall, as well as adhesions of all kinds. Personally, I have only done a second classical cesarean on two of my own patients and a third on a patient having had her first cesarean in an eastern clinic. In my own two cases there was not an adhesion of any kind within the abdomen, and the old uterine scar was scarcely visible. The third case had only a tiny adhesion of the omentum to the center of the uterine scar. In all three cases the uterus was full thickness along the whole extent of the old scar, and appeared to be normal in every way. In fact, no scar was evident throughout the whole reopening section along the old incision. The old incision was manifest only by a faint peritoneal line.

Several other surgeons have even gone so far as to say that there was no scar visible in the uterus of their reopened cases. Wetterwald reports thirteen repeat cesarean sections in which most of them showed no trace of a former section.

If the classic cesarean must be done, I prefer the second technic. The only objection to this operaiton as compared with the first technic is that it requires a very large abdominal wound. This long incision must be closed very carefully to prevent hernia. It also leaves a longer and consequently uglier scar.

The most desirable way of avoiding section of the placenta is by the cervical route which opens the uterus through the cervix and consequently below the usual site of the placenta. In placenta praevia, the placenta may lie immediately beneath the line of cervical section and for that reason the operation may be both difficult and dangerous. Placenta praevia is one of the few conditions remaining for which the classical operation may be preferred to the cervical. Whenever reasonable, the cervical operation should be performed in preference to the classical for the many valid reasons given above. DeLee's technic in his "laparotrachelotomy" is the best technic to follow.

DeLee and others attribute the increased safety of the cervical operation as compared to the classical as being due to the fact that the peritoneum is opened low in the pelvis in the former and more widely and

higher up in the latter. This explanation does not appeal to me. We all know that opening the peritoneum per se is fraught with little danger. Then why should it bear so much danger in cesarean section if there were no other cause? To my mind the most plausible explanation is that the cervical section usually avoids the placenta. When the placenta is cut, the incision goes only through the margin at the upper angle of the wound. Such a placental cut usually does little harm.

Statistics on the classical operation are mostly obtained from the low section of the uterus in situ. Here the placenta must be cut when situated on the anterior wall. This runs the mortality way up as compared to the placenta-avoiding cervical operation. This fact mostly accounts for its greater safety. Combined with the other advantages of this operation, it makes the sum total in causing lower mortality.

ECLAMPSIA

In this series of nineteen cases, ten cesarean sections were compulsory and about which there is no argument. Nine cases were elective, i.e., operation was considered safest for both mother and child. Four of these elective cases were for violent and uncontrollable eclamptic convulsions and two for preeclamptic conditions so severe that the obstetricians in charge advised cesarean section.

In this limited paper it is impossible to go into detail of these six cases which occurred over a period of eighteen years. For present purposes, it is sufficient to say that all six mothers recovered and only one baby died, as reported above. The five surviving babies were soon as strong as normal babies and developed perfectly. Four of the mothers made easy and convulsive-free recoveries. In one preconvulsive case real eclamptic convulsions began a few hours after delivery and continued for twelve hours but were rather easily controlled. This patient then made a normal recovery. The sixth case had four severe and uncontrollable convulsions during a few hours before entering the hospital. She had one mild convulsion and coma continued after the operation. This coma was due to cerebral edema which cleared up in a few days. Then followed a normal recovery.

Of all the elective cesarean cases, eclampsia has had the greatest reversals of opinion as to the best method of treatment. Until quite recently, the previous century had seen no improvement in the treatment of this fearsome toxemia. During that century the maternal mortality had remained between 7 and 30 per cent and the infant mortality ran between 40 and 60 per cent. Recently, Upshaw (Journal A.M.A., Dec. 13, 1932), reports a series of 91 cases of eclampsia treated by a definite conservative plan with a maternal mortality of only 5 per cent. Infant mortality was 35 per cent. In spite of the conservative treatment instituted and the good results obtained, two out of the 91 cases were submitted to cesarean section with recovery of both cases.

Briefly, Upshaw's treatment is: Immediately upon entering the hospital the eclamptic patient is given hypodermatically ¼ gr. morphine. Then 20 cc. of a ten per cent magnesium sulphate solution is given intravenously and repeated every hour till convulsions are controlled or for four or five doses. Sometimes the magnesium sulphate is gvien intramuscularly after the first dose. Then 300 cc. of 25 per cent dextrose in freshly distilled water is given intravenously and repeated every eight hours until delivery or full control of convulsions, and then every 12 hours for two days after delivery in severe cases. After the convulsions are controlled labor is induced by rupturing the membranes and the woman is allowed to deliver in a normal unhurried manner, the average time being 19⅓ hours.

Intravenous injection of sodium amytal is reported to be marvelous in controlling convulsions. Lewis mentions 44 cases so treated with no other sedative. Apparently conservative treatment of eclampsia has now greatly reduced the mortality, but there are always some cases which are better treated by cesarean section and the obstetrician should not blind himself to this fact.

ANESTHESIA

Local anesthesia is the best anesthetic where the patient has been thoroughly prepared and haste is not required. Personally, I like spinal anesthesia, and though I have not done enough cesareans by this method to give a sure recommendation, it certainly has worked beautifully in the few cases in which I have employed it. It is quite possible that spinal is contraindicated in eclampsia on account of the cerebral edema already present. I have used spinal anesthesia in only one case of eclampsia, and she had coma following the operation, but whether the anesthetic had anything to do with the coma is a question that only experience can decide. Local anesthesia is certainly to be considered in preference to spinal in this condition. Of the general anesthetics, ethylene is given the preference and then ether. No other general anesthetic should be used for cesarean section. It seems to me that the new rectal anesthetic, avertin, should be of value in these cases, but I have had no experience with it.

In conclusion, I would like to invite special attention to deliveries which require high forceps. Many of these would be better treated by cervical cesarean section. Especially is this true in elderly primiparas who have their first baby in or near the forties.

DISCUSSION

DR. H. V. FALL (Roswell, N.M.): Dr. Vance has given us a very splendid paper. Statistics on mortality of cesarean section gathered at large from all over the country show that approximately five hundred women meet their deaths following cesarean section each year. This information we obtain from mortality schedules and the men who get them up are pretty apt to give the mortality from all cases. If we take selective cases only, the mortality is cut down from two to four per cent. Of course taking these cases just as they come, one does not have selected cases and cannot select them, so the mortality is high and will always remain high. We cannot select our cases for they come when in labor. I note that DeLee insists there are too many cesarean sections done each year. From the mortality tables, it would seem that they are being done all over the country, but there are many cases where the indications are positive and of course then cesarean section must be done. Dr. Vance has given an excellent summary of the methods, and those chosen by him, the so-called classical and cervical, are undoubtedly the best. In the classical he stressed very properly one point, which I want to emphasize, and that is the proper closing of the uterine wall. Another important thing that has occurred to me is that very occasionally we find a cervix that is not open—the cervix is contracted down. It is very important to examine the cervix after you have evacuated the child and see that the cervix is dilated and if not dilated, that should be done.

DR. VANCE (closing): Of course cesarean section throughout the country will have a high mortality because operation is not performed when it should be. There would be a very low mortality, just as low as DeLee reports, provided the patient is not allowed to go along in labor and get into an exhausted septic condition prior to operation. It is just like many years ago when we first commenced to operate for appendicitis, when the mortality throughout the United States on that account was tremendous. First, Phipps of Boston recommended removal of the appendix, and there were thousands of cases lost all over the country from operating because they were operated too late. It is just the question of getting the profession educated as to when to do a cesarean section. No one is going to advocate cesarean section if it can possibly be avoided.

In the classical cesarean operation, I recommend and shall continue to recommend to make the incision larger and bring the entire uterus out of the cavity.

CANCER OF THE BREAST
A General Discussion

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(Read before the New Mexico Medical Society at the Fifty-First Annual Meeting at Roswell, N. M., May 18-20, 1933.)

Nineteen thirty-three has been designated Breast Cancer Year by the American College of Surgeons and the American Society for the Control of Cancer. This paper is written with the idea of refreshing our minds on breast carcinoma, that today accounts for over 10,000 deaths annually. Many of these deaths could be prevented by early recognition and operation. In preparing this paper free use has been made of the summary of literature on breast cancer prepared by Grantley Waldor Taylor from the library of the American College of Surgeons and published in International Abstract of Surgery (July, 1932).

AGE. Simpson found only ten cases under the age of twenty-five years in 14,000 cases in a census report. Bloodgood stated that in 3.9 per cent of cases of malignant breast tumors, the patients first noticed a lump before the age of thirty. One-sixth of all breast carcinomas occur before the age of forty. The maximum incidence of breast cancer lies between the ages of forty and fifty, forty-seven to fifty being the peak years. In each succeeding decade the percentage decreases.

SEX. Approximately one per cent of breast carcinomas occur in males. In summing up a number of series of cases in which specific mention of cases of carcinoma of the male breast was made, it was found that out of 8,354 cases seventy occurred in the male.

RACE and NATIONALITY. Cancer of the breast is practically unknown among full blooded American Indian women. Wood in his Pennsylvania study found fifty-two deaths per 100,000 in white women over thirty-five years of age from cancer of the breast, as contrasted with twenty-six deaths in colored women.

Wainwright analyzing a group of 608 cases concludes, "we must not consider the large number of women of European birth or parentage a factor in increasing cancer morbidity, so we must expect the largest percentage of cancer of the breast cases to come from the women of American parentage."

FAMILY HISTORY. Practically all of the auth-

ors reporting give some place to heredity in the etiology of cancer of the breast, but attention must be directed to the necessity of correlating the history with Mendel's laws of heredity. It need have no being if a grandfather resembling another family strain died of cancer of the mouth induced by smoking. On the other hand, if a mother, sister, or aunt with a strong personal resemblance died of cancer of the breast, it should serve as a warning to avoid carefully those things known to predispose to the development of a similar neoplasm.

TRAUMA. There will be a history of trauma in from five to twenty-five per cent. Moschcowitz et al., observed that in twelve cases the average time elapsing between noted trauma and the onset of the disease was eight months.

PREGNANCY and LACTATION. It is evident that the unused breast is especially liable to be the seat of cancer. Wood found 109 cancers of the breast in 100,000 unmarried women to forty-four in married women. The highest ratio in the married women was in those with low fecundity and sterility. These same findings are true for chronic cystic mastitis. It is also well known that where one breast has been removed for cancer, a pregnancy is practically certain to start a cancer in the remaining breast. Trout collected fifteen patients who became pregnant following mastectomy for malignancy, thirteen of whom developed carcinoma in the remaining breast, twelve dying promptly.

SYMPTOMS. The first symptoms in cancer of the breast. An analysis of 1000 cases (American Society for the Control of Cancer):

	Sign or symptom	No. of cases	Percentage
1.	Lump in breast	740	74.0
2.	Pain in breast	66	6.6
3.	Enlargement of breast	53	5.3
4.	Retraction of nipple	26	2.6
5.	Lump in axilla	18	1.8
6.	Bleeding in nipple	14	1.4
7.	Pain in axilla, arm or shoulder	14	1.4
8.	Backache	14	1.4
9.	Erosion of nipple	13	1.3
10.	Ulceraiton of breast	10	1.0
11.	Inflammation of breast	10	1.0
12.	Swelling of arm	6	0.6
13.	Skin nodules	6	0.6
14.	Pruritis of nipple	5	0.5
15.	Supraclavicular lump	3	0.3
16.	Dimpling of skin of breast	2	0.2

EXAMINATION. A complete physical and laboratory examination should be a part of each breast examination so that intercurrent diseases such as diabetes, heart disease, etc., will not be overlooked. To examine the breasts, the clothing should be removed to the waist, and a careful inspection and palpation in the sitting position should be done; next in a reclining position, the examiner standing at the head of the table, supporting the arms above the head, inspection should be carefully carried out for irregularities in contour, often the deciding factor between a malignant and benign tumor. Remember that benign tumors of considerable size may be present without producing deformity. The arms should then be replaced by the sides and the breasts gently palpated, realizing that if a malignancy is present too vigorous palpation may be responsible for metastasis. The nipples should be tested for retraction and the axilla and supraclavicular areas examined for possible new growths.

X-rays should also be made of the chest, including the upper spine and arms as they are an invaluable aid in detecting metastasis.

Among recent diagnostic measures, a transillumination may be employed as outlined by Cutler, or soft tissue x-rays as advocated by Warren, Lockwood and others. These two procedures require more extended use before their full diagnostic value can be estimated. They are, however, worthy of trial.

PHYSICAL FINDINGS. If one or both breasts are very tender and no palpable tumor is found, we suspect mastodynia or neuralgia of the breast, a condition most frequently found in young unmarried women. Hard tumors, single or multiple, in one or both breasts that snap out from under the examining hand are probably fibro-adenomas and as a rule are encountered before the age of the patient would suggest cancer, usually in the early twenties.

The presence of a tumor in both breasts originating at the same time is more suggestive of benign than malignant growths, but cancer does begin simultaneously in both breasts in approximately one per cent of the cases. In five per cent it is found in the second breast later.

In the chronic productive mastitis group, the largest group seeking relief, the patient usually complains of pain and tenderness, and states that she feels a "lump." She has been feeling this lump at her periods for some time past and she has now made up her mind that it is a cancer. On examination, you readily make out a definite thickening of the interstitial tissue, surrounding many of the tubules. In many instances many of the acini are also palpable as small nodules (cystic acini) instead of the

one lump of which she complains. You find several areas not only in the breast complained of, but also in the opposite breast. The area complained of probably has a greater pathological change, but this is not often demonstrable to palpation. Keep in mind that a papillary adenoma may develop within the cysts that form in the acini as the result of low grade inflammations produced as a rule by the staphylococcus albus, entering through the lacteal ducts and favored by the hormonal changes which take place at the cancer age. At its base a carcinoma may develop, and the duct epithelium may become so chronically altered and changed as to degenerate into carcinoma. Also remember that as a result of the interstitial inflammatory changes surrounding the lacteal ducts, glands within the breast substance may become malignant.

If the nipple or areolar area shows evidence of a fissure, ulcer, or epithelial growth, a Paget's disease of the nipple should be suspected. A discharge from the nipple may be present in either benign or malignant conditions. Judd has called attention to the clear sticky discharge that stains the clothing yellow as coming from an intracanaliciular papilloma, while the discharge from cancer is more profuse, clear, watery, frequently with a foul odor.

If now you find a single tumor located in either quadrant of the breast or beneath the nipple, that does not move freely in the breast tissue, that is only slightly tender, and in which only an occasional lancinating pain has been observed, be suspicious of malignancy even though skin dimpling and nipple retraction may be slight or absent.

The presence of a large tumor in the breast with skin adherent and dimpled, the nipple retracted with or without masses in either or both axilla or supraclavicular areas, or an extensive inflammatory growth, immediately classifies the case as a far advanced breast cancer.

METASTASIS. Extension from the primary growth has been shown by Cheatle, Wainwright, Handley, and others to occur along connective tissue septa in the breast and along the deep fascia overlying the muscle. Handley feels that lymphatic permeation is the only mechanism involved in distant metastasis.

For tumors located centrally and in the outer quadrants, the axillary lymphatics constitute the natural drainage area. Tumors located in the upper and inner quadrants are more likely to metastasize supraclavicularly. Those in the inner and lower quadrants metastasize internally and involve the pleura, liver, and other viscera.

ACCURACY OF PHYSICAL DIAGNOSIS. Having gone over the benign and malignant possibilities, what are the probabilities of our diagnosis being correct? McCarty reported that 5.5 per cent of breast tumors clinically malignant proved to be benign, while 11.2 per cent clinically benign proved to be malignant. With all the propaganda that is being disseminated among women, directing their attention to their breasts, the necessity for more accurate clinical diagnosis of breast tumors is increasing daily. Bloodgood states that where formerly the breast tumors he saw were 85 per cent malignant, today the corresponding percentage is only 25 per cent.

BIOPSY. Ewing advises that no surgeon remove a tumor or nodule from the breast except in a surgical operating room where he is prepared to have an immediate diagnosis made and the proper operation performed at the same time. The danger of wide dissemination of a strictly local neoplasm resulting from premature biopsy is too great to permit such procedure. Undoubtedly many cancers of the breast are started on the road to distant metastasis by allowing a lapse of time between biopsy and radical operation.

Ewing also holds that no patient should be subjected to radical operation unless an undoubted diagnosis of malignancy has been made. It is manifestly unfair to do extensive surgery for benign growths, and when the diagnosis is clinically borderline, the final opinion should be a composite of the clinical opinion and the findings of a competent pathologist from frozen section and gross examination done after preparation has been made for immediate radical operation if it becomes necessary. One must always remember that many precancerous and suspicious lesions in the breast are clinically benign. However, when doubt exists in the minds of both the clinician and the pathologist, the tumor is usually not cancer.

PATHOLOGY. The various nonmalignant growths, constituting from 20 to 50 per cent of breast tumors should be known and considered as possibilities when making a clinical diagnosis. In the case of carcinoma, it should be pointed out that the terms adenocarcinoma, duct carcinoma, and acinar carcinoma indicate point of origin. There is a confusion of terms such as mucoid carcinoma, scirrhous carcinoma, carcinoma simplex, and so forth, which refer to details of structure and are as varied as are

the pathologists who write them. The essential point to remember is that they designate the predominant histological or gross features of the neoplasm and that any given tumor may exhibit several or all of them. It, therefore, seems that aside from the point of origin, it is being rather superscientific to attempt to too closely classify neoplasms of the breast, but rather that their detailed anatomy should be utilized in an attempt to properly evaluate their relative malignancy.

TREATMENT. If the physical examination has disclosed a growth probably cancerous in the breast that is freely moveable and without diffuse skin nodules, combined with or without movable axillary growths and the diagnosis has been confirmed in the operating room, radical removal after the method of Halstead and Willy Meyer is indicated.

Several new methods of operating have been described. Anderson reported on the use of surgical diathermy in fifty-six breast operations. Scott described his electric cautery operation. Percy described a very radical operation with the "hot knife" technic. Handley described a technic for combining radium implantation with radical operation. None of these innovations has been widely adopted, and further figures are desirable before an attempt is made to estimate their value.

If, however, any one of the following conditions is disclosed by physical examination, the case will be considered inoperable and should be treated by means of irradiation:

1. Fixation of the breast tumor itself to the chest wall.
2. Involvement of the supraclavicular nodes.
3. Definite involvement of the opposite axillary nodes.
4. Diffuse subcutaneous nodules.
5. Diffuse inflammatory carcinoma, involving a considerable area.
6. Chest metastasis, pleural or mediastinal.
7. More remote metastasis.

IRRADIATION. There is general agreement that irradiation is indicated in the treatment of all inoperable and recurrent cases, and as reports from general hospitals indicate that only 25 per cent of the breast cancers admitted are suitable for radical operation, this group constitutes an important field for irradiation therapy.

Inoperable cases that are far advanced may expect from irradiation relief from pain, healing of ulcer and improvement of the general condition and probably prolongation of life.

Pfahler reports 126 patients with advanced primary inoperable lesions, 41 per cent were alive after three years and 20 per cent after five or more years. Lee recorded the average duration from the onset of recurrence to death as two years and four months in a radiated series of cases, whereas, in a nonradiated series of cases by Gibson the corresponding length of time was six and one-half months. Sistrunk and MacCarty stated that when local recurrences develop, other remote metatases are demonstrable in 60.9 per cent of the cases. As to the general use of irradiation both pre and post-operative, the pre-operative irradiation is of more value than the post-operative irradiation. At present the elective method in operative cases is to give a thorough treatment two or three weeks before operation, then post-operatively give one treatment if the axillary glands were not involved. In cases in which carcinoma was found in the axillary glands, three treatments should be given at intervals of four to six weeks, depending upon the patient's general condition and the skin reaction.

Paget's disease of the nipple may be treated with irradiation or cauterization if confined to the surface, but the possibility of the lesion on the surface being an extension from a duct carcinoma must be definitely determined before local treatment is started.

PROGNOSIS. The clinical index as elaborated by Lee and Stubenbord gives a very definite idea as to what may be expected as to life expectancy. It is based upon age of patient, rate of growth, and extent of lesion, presence or absence of lactation. The index is secured by multiplying the weights of the factors by their gradation factors and adding the result. The figures thus obtained are somewhere between 11 and 55. The latter representing incidences of all the most malignant characteristics.

CLINICAL INDEX FOR BREAST CARCINOMA

Weighting Factor		Gradation Factor	
Age	A = 2	Over 55	= 1
		41-55	= 2
		40 or under	= 5
Lactation	L = 3	Absent	= 0
		Present	= 3
Rate of growth	R = 4	Slow	= 1
		Moderate	= 2
		Rapid	= 4
Extent of disease	E = 5	Diameter	
		3 c.m. or less	= 1
		Over 3 c. m.	= 2
		Nodes present	= 4

Multiply the gradation factors as they apply to each case by the weighting factors and add the to-

tals. Based upon such a calculation, patients may be placed in one of three grades:

Grade A. 11 - 25—relatively benign—69% of 5 year cures.

Grade B. 26 - 39—moderately malignant—34% of 5 year cures.

Grade C. 40 - 55—highly malignant—4% of 5 year cures.

RECURRENCES. According to Scott and Bloodgood local recurrences under three years may be considered evidence of an inadequate operation or of a disease so extensive as to have been definitely inoperable. Scott suggested that the incidence of local recurrence within three years be used as a criterion of operative technic. Pfahler and Widman reported that the average time from operation to the appearance of recurrences in 255 cases was one year and four months; 56 per cent of recurrences developed within six months. Burts stated that 28.5 per cent of recurrences occurred within the first six months. On the other hand, Woolsey collected fifty-one late regional recurrences, occurring up to twenty-five years after operation.

DISCUSSION

DR. JOHN T. MOORE (Houston, Texas): Your president could not have called upon me to discuss a subject in which I am more interested than this one, which was so well presented by Dr. Cathcart of El Paso. Time will not permit me to say all of the things I would say were I actually turned loose on this subject. In the first place I want to say that no age, sex, or race may be eliminated, as cancer of the breast may be present in any of them. I have heard it said that the North American Indian and some of the African tribes were free of cancer of the breast, but I know of no race that is free of cancer of the breast. Some of our medical men expressed surprise when I talked on cancer of the male breast. There have been quite a series reported in literature. Cancer of the male breast may be noted at all ages from birth to old age. In the female it may come from girlhood, even in a child as young as eight years of age, so we make the statement very definitely and positively that no race, sex or age may be free from cancer.

Traumatism is now accepted by all men who work on cancer as one of the strong provocative causes of cancer; there can be very little question of that. Any traumatism of any part may cause cancer. Often in many cases that give a history of traumatism you may find that cancer was already present and by self examination, the patient has come to find a lesion of some kind and he attributes it to the traumatism. Mention was made that the unused breast is more liable to be the seat of cancer. It is known by men who work on the subject that this applies almost universally to every organ. The more nearly the function of the organ is maintained in its normalcy, the less apt is cancer to come. The abnormal things are apt to promote the growth of cancer in any organ. Cancer of the cervix is found rarely in women who never have been instrumented, or who have never borne a child.

Dr. Cathcart emphasized the importance of examination and I would like to say very emphatically a few things about the examination. For several years, I taught medicine in the University of Texas and it was part of my business to teach diagnosis. We tried to impress upon the students the necessity of making complete examinations of every patient seen, regardless of who it was. We sometimes had the question arise in the Clinic as to the examination of women. A few women objected to an examination of the breast. We asked our students never to raise the question, but to take it for granted that any one who came to the Clinic, came for an examination. Start in with an inspection of both breasts; follow with gentle palpation. We examine the breasts of every man, woman and child who comes to our office. Never raise a question about permitting the examination at all, but proceed at once to do it. It used to be the mother came with the daughter to be examined and she objected to almost everything. Now the girls come and talk freely about any of their ailments and no objection is raised about the examination. There is one thing we must all learn to do and that is to examine lightly. Our students and most of our doctors examine too hard—one might speak of it as being rough; light touch reveals more than does great pressure on the breast. I have tried to emphasize at this point that when you find a small mass or tumor, do not roughly examine it.

It has been found by experimentation on animals that even very light tapping doubled the liability of metastasis over those not tapped. Rough handling of the breasts is one of the strong factors in carrying cancer to other parts of the body. Examination by transillumination, I think, will probably prove to be of some value. The claims of some for its value have not been sustained by us. The author of the method probably gives it only as another diagnostic aid to help in differentiating tumors of the breast. When going into a big game country, I would carry guns of several kinds, and I believe it is up to the doctor to have every kind of test or equipment that adds to the power of his discrimination, and use them all as far as he can in every case.

I would like to accept Handley's statements and theory of permeation by the lymphatic vessels to the parts of adjacent organs as having been definitely proven, but I do not believe his permeation theory accounts for the distribution of cancer to the bones of the legs and to the pelvis. I still believe metastasis takes place also through the blood vessels, or circulatory system.

As to biopsy, never in a cancer of the breast until, as Dr. Cathcart said, you are ready to shoot the lion. Do not undertake to take a lump out of a breast

until you are qualified to pass upon its exact nature, or have somebody, a trained pathologist, to tell you at the moment what it is and then be ready to carry out your program. Have your machinery set to do the whole thing when you start.

What are the early symptoms of cancer? Of the twenty-six symptoms given on the lantern slide there is only one mentioned which is an early symptom of cancer of the breast, and that is a *lump* in the breast.

What are we going to do that will be of help in making early diagnosis in this condition? We have first to awaken our people to the necessity of examinations. I am not converted thoroughly to this question of annual examinations, however, and am not sure whether it will prove to be good or not, but believe it may be so after the people are more thoroughly educated. The doctor may create a phobia in the mind of the patient which is very damaging. A phobia is pretty nearly as bad as the disease. We have all had men who come to us with these phobias—also women, particularly of the neurotic type. When a woman finds a lump in her breast, what ought she do? She ought to go to a competent medical man at once and have him tell her what is the best thing to do about it. Should we take out all lumps? I think most of them, unless we can say positively that it is not cancer.

There is no such thing as absolute knowledge, then the lump must come out; in fact it is safer to take any lump out.

When the growth is removed be prepared to examine and section it so as to determine its nature. Should it be cancer, then be prepared also to do what is best by a radical procedure. Ask yourself what will we accomplish by this—will it be of benefit? I want to emphasize that by taking out many of these small lumps, we will save many a woman's life. First, a tumor potentially cancerous is out; second, we will detect early cancers in many of these apparently innocent lumps.

There has been no time in the world's history when preventive medicine has occupied so important a place as it does at present. It is the thing that is leading us out of the wilderness. What will you do with these little tumors after taking them out? Send the tumor away to a pathologist for examination and after receiving a report do the operation? No, never. Be prepared to make the diagnosis and then do what is best. I was in a clinic in Munich when a great surgeon removed a little tumor from the breast. He cut through it, looked at it carefully and stated that it was an early carcinoma. He then turned to us and remarked that some surgeons turned their tumors over to the pathologist, but he himself examined all of the specimens he took out and passed upon them, and after that, he then had his pathologist look them over carefully, grossly and microscopically. The pathologist and he conferred for the conclusion or checks with him. He said "Any surgeon ought to be able to recognize a beginning carcinoma when the tissue is before him. The surgeon who is operating must train himself to make a diagnosis of cancer, unless he does he ought not to operate on the breast."

DR. JAMES VANCE (El Paso, Texas): From a practical point of view, the one important factor is the tumor. If we depend too much upon Dr. Bloodgood's sign, we are apt to overlook some small tumors that are actually present in the breast. Of course since the successful treatment of carcinoma of the breast depends on early diagnosis, it is necessary to palpate that breast very lightly and be very careful there is not a small tumor there. If we wait until the patient finds the tumor, it is nearly always too late to get a reasonably certain cure. The location of the tumor is a very important factor. My experience has been that those located in the lower part of the breast are far more malignant than those located in the upper part. This may just happen so. The most malignant tumor I ever saw did not show by the Bloodgood sign and was a little tumor in the lower portion of the breast, lower internal quadrant, I remember. This was associated with pain in the axilla and in the shoulder and down the arm. If there is any pain into the axilla or shoulder, be on the lookout as the tumor is almost certain to be malignant and it is apt to be too late then. In one particular case I had of this type, a very small tumor was found. It was operated within two weeks after the first discovery and then the tumor was not larger than a pigeon egg and did not show with the Bloodgood sign at all.

As to biopsy, there is no question that no tumor should be removed purely for microscopic examination. The pathologist should be present in the operating room and make the examination right there and then, and whatever is necessary to be done must be done at once. There has been too great a mortality from those biopsies done several days or a week before operation was performed.

As to irradiation, this depends entirely upon the experience of the laboratory man. It may be that we will get improved results by irradiation, as Dr. Cathcart has suggested, before the removal of the growth, and perhaps in severe cases irradiation afterwards, but of course it depends entirely upon the ability of the man who gives it and mainly his experience, and I want to say that every laboratory man who is doing x-ray surgery, ought to follow his diagnosis to the operating room and then to the after results. Most laboratory men merely content themselves with the laboratory end of it.

DR. F. D. VICKERS, (Deming, N.M.): I do not believe when there is a lump in the breast, the diagnosis has been made early enough. It may be the earliest sign we have, but after a lump has appeared it is not early any more.

DR. M. B. CULPEPPER, (Carlsbad, N. M.): I should like to ask Dr. Cathcart what importance he attaches to a retracted nipple, especially if you cannot find a tumor and cannot find a reason, yet there is a decided retraction of one nipple.

DR. J. W. CATHCART (closing): "I want to thank the doctors for their generous discussion and Dr. Moore particularly for elucidating so clearly many different points in the paper. In our experience, the phobia class has been found chiefly among the chronic productive cystic mastitis group, and is, we feel, a result of the sensations in the breast at the menstrual periods.

Dr. Vance mentions the case of a tumor that failed to show on inspection. There are of course exceptions to all rules. Allow me to direct attention to the desirability in inspection of the breasts for deformities in contour to employ a soft daylight falling equally on both breasts.

Relative to the malignancy of tumors in the inner and lower quadrants of the breast, Dr. Vance is correct in assuming that those that have metastasized are uniformly fatal. This is due to drainage from this area, occuring most frequently inside of the chest wall. Fortunately the percentage of malignancies is lowest in these quadrants of the breast.

Dr. Vickers thinks when a lump appears it is too late. Not far wrong at that.

In regard to Dr. Culpepper's question as to retraction of a nipple without a palpable tumor, the history in a case of that kind would be of inestimable value. If the retraction has occurred recently, I would be very suspicious of malignancy.

THE ETIOLOGY OF ECZEMA

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(Read before the New Mexico Medical Society, Fifty-first Annual Meeting, Roswell, New Mexico, May 18-20, 1933.)

Previous to a few years ago, the dermatologist held as little hope for the permanent recovery of an eczematous patient as he harbors today for a complete cure in a case of dermatitis herpetiformis or psoriasis. The reason for this change in the physician's attitude toward eczema is that, at the present, the etiology of this condition can, in most instances, be solved and the patient readily cured.

The old belief that eczema is caused by "too much acid in the blood," "stomach disorders," "disturbances in the function of the endocrine glands," "nervousness" and even "faulty metabolism," is tottering on a foundation of insufficient scientific proof. The metabolic theory of the causation of eczema is the only one still worthy of consideration; yet all attempts to prove that eczema is ever the result of a deranged metabolism have met with complete failure. It has been shown through carefully controlled investigation by competent workers that such metabolites as urea, uric acid and creatinin do not act as dermal irritants when placed in contact with the skin or injected intravenously into an eczematous person. However, the products of metabolism are theoretically among the antigens which can produce idiosyncratic reactions.

The usual skin responses to derangements of the nervous system are transient, blotchy erythemas and urticaria. While not primarily etiologic, anxiety and worry do act as aggravating factors in true eczema. Dysfunction of our endocrine glandular system causes hyperpigmentation, abnormal dryness of the skin and so forth, but probably never causes the pruritic, papular, vesicular, weeping and lichenified eruptions known, clinically, as eczema.

We may be hasty in stating that metabolic, nervous, and endocrine disturbances do not cause eczema; if such causes do exist, they account for an insignificant minority of these eruptions.

Also, the division of eczema into its various types, as erythematous, papular, vesicular, weeping, squamous, lichenified, and the like is unwarranted. A single cause may evoke all the above enumerated types of the disease in the same individual. Types mean little in eczema—the cause alone is of importance.

The veil which formerly obscured our knowledge of the etiology of this disease has gradually been lifted by that same step-by-step accumulation of facts which proved hay-fever and asthma to be true antigen-antibody reactions. Although it is contended by some that eczema is not a true antigen-antibody reaction, it may be postulated for the present that this disease is a manifestation of a cutaneous sensitization to some substance extraneous to the human mechanism—and to the layman at least it may be called "hay-fever" or "asthma" of the skin.

CAUSES OF ECZEMA

Our present conception of the etiology of eczema is that this condition is a result of the sensitization of the skin to some substance with which it comes in contact, whether this be exogenous—as vegetation, chemicals, animal hair, and so forth,—or endogenous —as a food, drug, or the antigenic product of a bacterial or fungous infection carried to the cutaneous covering by the blood stream. From our observations of the origin of eczema, we think it safe to assert that fully eighty per cent of the attacks of dermatitis of this nature are occasioned by exposure of an individual to some substance encountered in his environment. The remaining small percentage of cases, whether this be ten or twenty per cent of the

total, are due to the combined other causes. When the conditions termed varicose eczema (hemostatic dermatitis), seborrheic eczema (seborrhea or seborrheic dermatitis) and certain of the localized lichenified eczecas (neurodermatitis) are removed from this category, the percentage of cases of eczema due to contact with some exogenous substance rapidly rises.

CONTACT ECZEMA

Identity of Dermatitis Venenata and Contact Dermatitis (Eczema). Physicians and laymen alike are familiar with the acute, vesicular eruptions designated as "dermatitis venenata," which are occasioned by the contact of a hypersensitive skin with such plants as "poison ivy," "poison sumac," the various spurges, and English primrose; also the dermal irritants encountered in the various trades, as cement, turpentine, chromium compounds, crude oils, and the like. It has only been in the last decade that dermatologists have come to realize that such apparently innocuous substances as animal hair, vegetation of all types, cosmetics of the costliest brands, news print, and, in fact, any conceivable substance which comes in contact with the human skin, may excite an eruption which is indistinguishable from the well-recognized dermatitis venenata.

Clinically and microscopically dermatitis venenata and eczema are identical. Both are but varying manifestations of the same disease. Dermatitis venenata is acute and infrequently recurrent, since the patient is usually aware of its cause, viz: the acute vesicular eruptions following exposure to ivy while in the woods, an acute edema of the face following the application of a newly purchased cosmetic, or an acute dermatitis of the ankles following the application of a shoe dye. Eczema is chronic, subject to remissions, exacerbations and recurrences, since the eruption usually begins insidiously and the victim is wholly unaware of its etiology (eczema in farmers from contact with vegetation and animal hair of all types; of bakers from contact with flour, sugar, salt, and so on; in a schoolteacher from chalk; in stenographers from carbon paper or a varnished desk, and so forth).

In dermatitis venenata the patient is markedly hypersensitive to the contacted substance and a rapidly progressive vesicular dermatitis results; in eczema the patient is less sensitive to this same agent and days, weeks, or even months of exposure are required before an eruption severe enough to require the attention of a physician is evoked.

In dermatitis venenata the first evidence of sensitization to a substance is a pruritic erythema which readily becomes edematous and vesiculation rapidly ensues. In eczema the first evidence of beginning sensitization of a given area to an eczematogenous antigen is usually a mild pruritus. It may be weeks or months before sensitization progresses to such a point that an erythema of the area appears. The sensitization of the patient may not progress further, or papules, vesicles and oozing may appear. Through the trauma of rubbing and scratching, occasioned by the long-standing pruritus, thickening of the skin is produced and the typical clinical picture of eczema is presented.

THEORY OF CONTACT ECZEMA

The old theory that all antigens, in any allergic process, are proteins, is now untenable. Most of the excitants causing eczema are not complete antigens; yet, from the practical standpoint of the physician consulted and the eczematous patient seeking relief, it matters little whether we term this reaction allergy, hypersensitiveness or idiosyncrasy. The ultimate result of surface contact of an allergic, hypersensitive, or idiosyncratic skin with a specific foreign substance, is contact dermatitis or contact eczema.

It has long been recognized that most of these eczematogenous substances are not primarily skin irritants; are not in themselves capable of producing a skin eruption upon a normal or unsensitized individual. Few persons would consider as primary skin irritants the hair of cattle, dogs, cats, and rabbits; such commonplace plants as daisies, zinnias, tulips, chrysanthemums, ferns, feverfew, baby's breath; the ordinary garden vegetables, as spinach, mustard greens, tomatoes, celery, okra, turnips; field plants such as broomweed, cockle-bur, parthenium, marsh-elder, ragweed, milkweed; Bermuda and Johnson grass; the grains, such as oats, wheat and corn; and other substances too numerous to mention. We have observed in our private practice eczemas due to all the above enumerated members of the animal or vegetable kingdom. Just as unbelievable are the contact eczemas in our practice proved due to the equally commonplace excitants, such as rubbing alcohol, cosmetics of almost all makes and kinds, platinum rings, matches, a metal charm carried in the pockets, mosquito lotions, insect powders and sprays, furniture polish, shoe dyes, a small hackberry stick used as a toothbrush; the elastic of corsets and hose-supporters, binding twine, glued wrapping paper, tobacco encountered while rolling cigarettes, spectacle

frames, bead necklaces, leather lining of shoes, felt hats, house dust, a nickle-plated handle of an ice-box door, disinfectants used in douches and deodorants on sanitary pads, toilet paper, and countless other commonplace articles.

Although these substances, strictly speaking, cannot be regarded as true antigens, eczema—like asthma, hay-fever, and certain urticarias—is probably produced by a specified antigen-antibody reaction. In hay-fever and asthma, the specific antibodies produced by the sensitized cells of the nasal mucosa and bronchioles of the lung, and usually adherent to them, can become free in the circulating blood and still keep their power of specific reaction with their particular antigen. Their presence in the blood stream in asthma and hay-fever can usually be demonstrated by the method of Prausnitz-Kustner of passive transfer.

In only a limited number of instances has passive sensitization been demonstrated in contact eczema. In this condition the difficulty of demonstrating the transference of specific antibodies by the Prausnitz-Kustner technic is probably based on the fact that in this type of idiosyncrasy it is exceptional for the specific antibodies to become free from the cells to which they are anchored and gain entrance into the blood stream. It is not theoretically impossible that the cell-fixed antibodies of the vascular mucous membrane of the nose (hay-fever) and of the equally vascular bronchioles of the lung (asthma) are more readily washed into the circulating blood than are the fixed antibodies of the less vascular horn cells of the epidermis (contact eczema) and therefore are more easily demonstrable by the method of Prausnitz-Kustner.

The question may be raised as to why one individual develops contact eczema from exposure to a given substance within a few days or weeks after contacting this excitant; a second develops such a dermatitis only after years of exposure to the irritant; while a third may never show demonstrable evidence of sensitization to this substance. Analogous to this, are sensitizations to rag-weed pollen. Of three individuals reared in a farm home surrounded by rag-weed, one develops hay-fever or asthma early in life; the second shows no symptoms until the fourth or fifth decade; while the third member of the trio never develops demonstrable evidence of sensitization to this pollen.

All individuals are probably potentially sensitive to any given substance if their skin surface contacts this substance if sufficient concentration or for a sufficiently prolonged period. After sensitization to a specific eczematogenous substance has once developed, the sensitization remains stationary, increases, decreases, or even entirely disappears, depending to a certain degree, at least, upon the frequency of contact with the specific excitant.

This is shown best by the variations in sensitization to the poison-ivy plant. New born infants are not sensitive to ivy on first contact with the leaf or extract. If these same infants are tested again after several weeks, approximately the same percentage of sensitization is found in them as is encountered in adults who have been exposed to ivy under natural conditions. In these children the first application has apparently acted as the sensitizing dose. It has been shown that Eskimos who live north of the mouth of the St. Lawrence River are not sensitive to a concentrated extract of the ivy plant. As ivy does not grow north of this latitude, these people have never received a sensitizing exposure to the plant. The American Indians, who are believed to be closely related to the Eskimos, have been found by many observers to be as frequently subject to ivy dermatitis as are the white races.

Many individuals sensitive to ivy during childhood develop partial or complete immunity to the plant after puberty. Obversely, I have observed a violent ivy dermatitis in individuals who stated that during childhood they could handle the plant with impunity.

Two years ago, in conjunction with Dr. J. H. Black of Dallas, I artificially sensitized myself and an office assistant to poison ivy (R. radicans). During boyhood I could handle this plant with no ill effects. For two months previous to my artificial sensitization, I repeatedly collected this vine in the field for the purpose of making extracts for attempted desensitization of ivy-sensitive patients; on numerous occasions rubbed the leaf on the volar surface of my left forearm; manually squeezed the ether-soaked or alcohol-soaked ivy leaves while making the extract; yet no dermatitis of the slightest degree followed these repeated exposures. After the seventh application of a concentrated ivy extract to the volar surface of the forearm, a dermatitis first appeared. My assistant, who was equally as immune to the plant before artificial sensitization was started, developed a contact dermatitis after the ninth application of the concentrated extract. After sensitization had once occurred, both reacted to the ivy leaf and dilutions of the extract up to 1-10,000. The mere application of the leaf to the sensitized

forearm of my assistant caused such a violent reaction that two days' absence from office duty was necessary.

When retested recently, after an absence of contact with ivy for a period of two years, my assistant was found equally sensitive to the leaf and to 1-100, 1-500 and 1-2000 concentration of the extract. Application of the leaf and the same concentration of the extract to my forearm evoked no evidence of an ivy sensitization. In one instance sensitization to a given substance remained approximately stationary during an interval of two years; in the second instance cutaneous sensitization to the same excitant had entirely disappeared. Similar variations in the degree of sensitization have been observed in individuals idiosyncratic to members of the ragweed family (ragweed pollen, orris root, pyrethum) novocaine, turpentine, cosmetics of different types, zinnias, almond meal, and so forth.

Once a patient's skin has become sensitive to one eczematogenous excitant, the more likely is that skin to become sensitive to other substances. We have recently observed a patient who consecutively developed contact dermatitis from an insect spray, ragweed pollen, a face cream containing orris root, and finally from an orris-free cream. As in hay-fever and asthma, instances of multiple sensitization are not infrequently observed in contact eczema. We have treated a farmer who was markedly sensitive to all portions of the ragweed plant except the pollen, broomweed, parsnipweed and corn shucks, all of which he contacted almost daily. Cure of his eczema, therefore, required avoidance of all these plants as attempted desensitization was not feasible.

DIAGNOSIS OF CONTACT ECZEMA

The experienced dermatologist may immediately suspect an eczema to be of external origin because of the localization of the dermatitis or the occupation of the patient. A dermatitis confined to the upper thighs in men suggests, for example contact with phosphorus from matches carried in the trouser pockets; an eczema of the right hand in women calls for questioning concerning the disinfectants used in douches; recurrent summer eruptions about the ankles lead to the suspicion of mosquito lotions; a Monday-morning dermatitis of the same area suggests a shoe polish used on Sunday; while an eczema of the anterior surface of the neck in men directs suspicion toward a dyed necktie. An eczema in a tradesman raises the question of some substance encountered in his occupation.

While a physician's suspicions of the etiology in any case of contact dermatitis may be partially substantiated by a carefully elicited history revealing exposure to eczematogenous substances; by the disappearance of the eruption on areas of the body covered with exclusion bandages or through experimentally reproducing the dermatitis (patch test), the final proof that an eczema is caused by any given substance is the complete disappearance of the eruption when the specific antigen is avoided and the recurrence of the exanthem when the specific excitant is again encountered.

History. Investigation of the cause of contact eczema demands of the physician a thorough knowledge of the various eczematogenous substances with which the patient may come in contact in his occupational or home environment. It must be remembered that any substance, however banal or commonplace, can excite a contact dermatitis in an idiosyncratic individual and, therefore, the history of exposure to some apparently innocuous substance should never be considered as unimportant. Allow the patient to narrate his own story. Such data as the site or time of onset of the eruption, remissions over the week-end or during a vacation, exacerbations at certain periods of the week or month, a birthday, marriage, divorce, the purchase of a pet, the death of an uncle, loss of employment, and a host of other apparently irrelevant statements by the patient have prompted us to determine the cause of many perplexing eczemas.

Example: An individual, who had suffered for several years, from a mild eczema of the exposed surfaces, suddenly became worse. He volunteered the information that the eruption immediately increased in severity after the loss of a position he had held for years, and attributed the exacerbation to "nervousness" over monetary matters. Careful questioning revealed the fact that house duties formerly performed by a servant had been partially taken over. A patch test done with house dust from his carpet-sweeper was markedly positive and the eruption disappeared when his environment was changed.

In the solving of contact eczemas clues must be followed. To successfully treat such eczemas one must be a good detective rather than a skilled physician.

After listening to the patient's story, the physician must then direct questions regarding contacted substances. To do this intelligently, it is of the greatest importance that the investigator have full knowledge of the various eczematogenous substances which are most likely to affect given areas of the

body surface. In eczema of the eye-lids, for example, we cannot expect the patient to volunteer complete information concerning substances which have come in contact with these areas. A cosmetic cream or lotion used on the entire face may cause an eczema of the eye-lids alone. In addition to the usual cosmetics, specific questions must be directed concerning the use of temporary and semi-permanent eye-lash and brow dyes, eye-shadows, vaseline, eye-drops or lotions prescribed by physicians, perfumes used about the eye-brows, eye-lash curlers, spectacle frames and even substances which do not affect the callous skin of the fingers but do cause an eruption on the eye-lids by manual transference, as para-red ink from reading the rotogravure section of newspapers or phosphorous sesquisulphide from matches carried in the pockets. A list of reported eczematogenous substances is indispensable in such questioning.

A contact diary kept by an eczematous patient is often of aid in detecting the causative agent in perplexing cases. In such a diary the patient is instructed to list every contact, however irrelevant. While perusing the many entries in such a diary, the attention of the physician is occasionauly directed to some substance not previously considered.

Exclusion Bandages. It frequently happens that the investigator is at a loss to determine accurately whether a given dermatosis is due to an external factor or other cause. When an eczema involves an extremity, definite proof of the nature of the eruption can be obtained by covering these areas for a period of one or two weeks with a gelatin compound (Unna paste) bandage, as in the treatment of leg ulcers.

If the eczema is due to an exogenous cause, the covered area will usually have healed when the bandage is removed, often presenting a marked contrast to the eczematous areas unprotected from the contacted excitant. Such a test does not detect the offending agent. It does aid in proving that the dermatosis under consideration is of exogenous nature; stimulates further search for the causative excitant; but, above all, it restores the confidence of the patient, which has materially waned after many fruitless attempts by the physician to convince him of the external nature of the eruption. In eczemas confined to the hands, pallbearers' gloves may be worn over one hand where the feasibility of such a procedure permits. A bandage over the glove gives the necessary added protection and may be changed by the patient when soiled. Smaller areas on the body can be covered with finely woven cotton cloth held in place with rubber cement.

The Patch or Contact Test. In determining the causative agent, contact eczema requires an entirely different type of skin testing than do other types of allergic skin eruptions, such as certain urticarias and dietary eczemas. The intradermal and scratch method of applying the antigen is of little or no value in testing the skin in eczemas of exogenous cause.

TECHNIC OF APPLICATION AND VARIATIONS OF THE PATCH TEST.

Technic. Small amounts of substances which, from a carefully elicited history, seem to play an etiologic role in the causation of the eczema under consideration, are held in contact with the skin of the patient for a period of twenty-four hours, unless the resulting irritation at the contact site becomes too severe to be conveniently tolerated. The substances to be tested are usually covered with a larger square of some impermeable material, as oiled silk, cellophane, or rubber dam. This covering is, in turn, held in place by strips of adhesive plaster. Liquids are conveniently applied by soaking a small piece of gauze in the solution to be tested. The moistened gauze is then covered with the impermeable material and anchored to the cutaneous surface with adhesive. An improvement on the conventional method of patch testing is done by using a closely woven cotton cloth as the covering material and a transparent rubber cement as the adhesive.

The patch should be removed after twenty-four hours. If positive, an erythematous area studded with papules or vesicles (reproduction of the eczema) is present at the tested site. In applying any new or unfamiliar substance, control tests should always be done to prove that the material is not a primary irritant.

Delayed Reactions. In exceptional instances a reaction may be delayed for several days or longer. Therefore the tested sites should be numbered with silver nitrate solution for future identification.

Doubtful Reactions. To consider a patch test positive, an erythematous area studded with small papules or vesicles must be present on the tested site. A simple traumatic erythema, transient in type, from pressure of the testing substance, cannot be considered as a positive test. If a doubtful reaction is present at the tested site on removal of the patch, the testing substance should be applied. It has occasionally been found necessary to keep the testing substance in contact with the skin for forty-eight hours or even longer before an unquestionable inflammatory reaction could be evoked.

Local Sensitization. An eczema may be due to local and not general sensitization to an eczemato-

genous substance. Sensitivity may be regionally different or limited only to those areas of the skin which have most frequently come in contact with the antigen. In such instances the application of a patch test to unaffected portions of the body will evoke no reaction. Therefore it is occasionally necessary to use the healed parts of the body for the test. Cosmetic eczemas of the face in women are especially prone to be manifestations of a local sensitization. Patch-tests in these cases done with the various cosmetics on the arm, back, or thigh will evoke no positive reaction; yet when all cosmetics are discontinued, the eczema will disappear, only to recur when certain of them are again used.

An example of extreme local sensitization has recently been observed in our practice. A chronic, lichenified eczema of the eye-lids of a female was proved due to contact with a lemon vanishing cream used over the entire face and neck. Although it was definitely demonstrated by repeated trials that the eye-lid inflammation was due to this cream, patch tests done with the cosmetic on various portions of the neck, cheek, arms, thighs, and legs were repeatedly negative.

Enlisting Patient's Aid. The attempted solution of many chronic eczemas of external origin often becomes tedious to the physician and patient alike. Also, many eczematous patients living at a distance can be observed for only a short period. Any physician who discovers the etiology of a large percentage of his cases of exogenous eczema must be unswerving in his enthusiasm. The patient's aid can be utilized if he can be made just as interested in his problem. When a person is once convinced, either by opinion given by the physician or by the employment of exclusion bandages, that his eczema is of external, rather than of internal, origin, he willingly consents to become his own detective. An individual of average intelligence can learn to do patch testing in a few minutes. The use of a contact diary enables him to select substances for testing. Even without skin testing, a patient is often able to cure his eruption by avoiding certain substances. In my opinion, the popularity of the various watering resorts for the cure of eczema is due to the fact that the eczematous patient, on visiting such a resort, leaves at home the offending eczematogenous substance, as a pet, a plant, or a material encountered in an occupation. Inform the patient of these facts, arouse his interest; then seek his aid.

ECZEMA FROM FOOD SENSITIZATION

That eczema may be caused by the ingestion of a food to which an individual is specifically sensitized is incontestable; yet the usual cutaneous expression of a food allergy is an urticaria or angioneurotic edema. Eczemas from food hypersensitiveness are far less frequent than the average physician realizes. Certainly, less than ten per cent of the dermatoses falling into the eczema group are occasioned by such an idiosyncrasy.

In the determination of the causative agents in food eczemas, elimination diets have largely supplanted skin testing with the various food extracts. As the majority of all food eczemas are due either to wheat, milk, or eggs, many such dermatoses can be cured by the simple elimination of these foods from the diet. When an eczema does not disappear after the elimination of these items, the diet should be restricted to approximately ten other foods, preferably, to one of the elimination diets suggested by Rowe. If the skin eruption disappears after subsisting on this diet for a variable period of one to four weeks, new foods are added at three day intervals. The patient is admonished to consume large amounts of the newly added food and to watch for any return of the skin symptoms, as a marked exaggeration of the pruritus. Offending foodstuffs are immediately eliminated. When the cutaneous eruption does not heal when one of the above diets is followed, these foods are eliminated and an entirely new list substituted. By juggling the diet, the causative agent in a food eczema can usually be determined; yet the problem becomes increasingly difficult in cases of multiple sensitization. In the employment of elimination diets, it must always be borne in mind that a chronic lichenified eczema may require many weeks for complete disappearance. Certain dangers accompany the employment of too restricted a diet over prolonged periods. In order to prevent such continued restrictions, new foods can be added before the skin completely heals, if the patient consumes large quantities of the newly added food and immediately discards foods which cause a marked increase of the skin symptoms.

When the eczematous adult is tested with the various food extracts by the conventional intradermal and scratch methods, he is usually found sensitive to half a dozen or more of the extracts. In most instances, when the reacting foods are eliminated from the diet, the eczema continues unabated. These foods can be later added without causing an exacerbation of the condition. False positive skin reactions are the rule rather than the exception with such testing. Conversely, in eczemas proved due to a food by the employment of elimination diets, the intradermal and scratch tests with the causative food extracts may

be entirely negative. Regardless of the fact that both false positive and false negative skin reactions are encountered in intradermal and scratch testing, these procedures should always be employed in the recalcitrant cases. Patch testing with the various foods in ingestion eczema is of little value due to the fact that positive tests are rarely encountered.

ECZEMA FROM BACTERIAL SENSITIZATION

Localized or widespread eczemas are occasionally caused by the cutaneous sensitization of a patient to the products (bacterial toxins and proteins) of a chronic bacterial focus within the body. In our practice eczemas of long standing have been observed to immediately flare-up and then so rapidly disappear completely after the removal of a chronic dental, tonsillar, mastoid, gallbladder, Fallopian tube or prostatic infection that we are convinced that the involution of the eczema was not merely coincidental to the removal of the bacterial focus.

Proof that the eczema is caused by sensitization to bacterial products is not yet possible with our present means of investigation. Intradermal tests with sterile cultures from these foci yield such a high percentage of false positive reactions that this procedure is fraught with error. Patch tests with these same cultures have to date yielded no reliable information. Proof of such an etiology for eczema is, at present, dependent upon the clinical observation that certain eczemas disappear after the removal of chronic bacterial foci.

ECZEMA FROM FUNGOUS SENSITIZATION

The usual expression of cutaneous sensitization to the products (fungous toxins and proteins) formed in a localized fungous focus and disseminated through the blood stream is a vesicular eruption of the hands (pompholyx) or a disseminate papular eruption of the trunk (lichenoid trichophytid). These secondary focal irritative lesions are termed an "id" or "dermatophytid" to distinguish them from the primary infective fungous focus or dermatophytosis. Localized or widespread patchy or diffuse eczematous lesions may also be caused by sensitization to the antigenic products liberated in a primary fungous infection, whether this be a dermatophytosis of the feet, hands, or groin, tinea of the nails, or ringworm of the scalp.

Proof that such an eczema is caused by sensitization to the products formed in the primary focus is dependent upon the fact that patients with an eczema of this nature usually show a markedly positive patch, scratch, and intradermal test with trichophytin; there is usually a local exacerbation of the eczematous lesions following the introduction into the body of small quantities of this extract; and a complete disappearance of the eczema follows the healing of the primary fungous focus.

Intradermal and patch tests with a 1:50 dilution of trichophytin yield such a high percentage of positive reactions, due to the high incidence of present or past dermatophytosis in this geographical area, that a negative reaction is considered in our practice of equal diagnostic value as a markedly positive test. Negative reactions in an eczematous patient with dermatophytosis are evidence that the eczema and the fungous infection are co-incidental.

ECZEMAS FROM DRUGS

Idiosyncrasies to drugs are usually manifested by acute exanthems which tend to disappear within a few days after the causative drug is discontinued. Although certain medicines may be ingested daily for months or years before sensitiveness develops, an eruption induced by such a hypersensitivity disappears so rapidly on discontinuance of the causative drug that little doubt exists as to its causation. Certain drugs, notably the arsphenamines and bromides, tend to become fixed in the tissues and give rise to exanthems which may require weeks or months for complete healing. The continued ingestion of a drug to which a patient is mildly sensitive occasions chronic exanthems in the form of localized eczematous lesions or generalized exfoliative dermatitis. Eczema-like eruptions of long standing have been observed in our office from the ingestion or intravenous or intramuscular injection of such drugs as amytal, luminal, quinine, stovarsol, sodium thiosulphate, phenolphthalein, neoarsphenamine and bismuth. Other eczemas have disappeared spontaneously after discontinuance of certain "patent remedies."

Proof that an eczema is due to sensitization to a drug requires the complete healing of the dermatitis when the suspected drug is discontinued and a recurrence of the typical lesions of this dermatosis when the drug is again ingested.

Patch tests with the causative drug are still in the experimental stage. Sensitivity to arsphenamine and neoarsphenamine can usually be readily determined, however, by contact tests done with a twenty-five per cent aqueous solution of this arsenical.

CONCLUSIONS

The eczema problem has not been completely solved. There has occurred, however, a gradual alteration in our beliefs as to the causation of this dermatosis. Whereas it was formerly believed that all eczemas were due to some internal factor, it is now considered that the rank and file of such eruptions

are caused by cutaneous sensitization to some exogenous substance. Sensitization to foods, drugs, and products of bacterial and fungous foci account for a minority of such exanthems. Idiosyncrasy to such metabolites as urea, uric acid, creatinin, and so forth, are possible factors in the etiology of this condition, as is the more remote possibility of idiosyncrasy to tobacco, which has been proved to occasion localized pruritus with subsequent lichenification.

Discussion

DR. M. B. CULPEPPER (Carlsbad, N. M.): I do not feel able to discuss this paper but wish to express my appreciation to Dr. Shelmire for his wonderful description and the deep study he has made of this subject. I should like to ask his opinion of a patient who had once suffered from erythematous patches, had apparently been cured only to suffer recurrences after long intermissions. The patient was treated, by a doctor in Oklahoma City, with sodium persulphate and apparently cured, but the recurrences were almost as severe as in the beginning. I should like to ask if this could have been the result of the original treatment.

DR. R. L. BRADLEY (Roswell, N. M.): I do not know very much about allergy but have been learning, as we have had it in the family. My wife has suffered with asthma for some 25 years, and about three years ago I had her tested out and found that it was due to milk and food. I gave her a few shots of adrenalin by hypo every night for a few days and we went over to Oklahoma Cty to see Dr. Balyeat, but by the time we arrived there she was well and has not been troubled with an attack of asthma since. My son is troubled with eczema on his hands; if he drinks ice water his lips and hands will swell, and if he handles ice, immediately there comes a large blister where he took hold of the ice. My two girls also are subject to urticaria.

I enjoyed the Doctor's paper very much and feel that we have been benefited by it.

DR. L. O. DUTTON (El Paso, Texas): I enjoyed Dr. Shelmire's excellent paper very much, but feel that he did not emphasize several points sufficiently. If you are a general practitioner and send a patient to a dermatologist, do not expect the patient to return and say that his eczema was due to so and so. These things cannot be worked out rapidly. As some of the Doctor's illustrative cases pointed out, it is like working a Chinese puzzle, and takes a great deal of time and patience. Eventually, however, the patient or some member of the family may give you a clue to what is happening and what was really the cause of the trouble.

I want to disagree with Dr. Shelmire on one point and that is the efficacy of skin tests for food substances. I do not believe that the elimination diet is superior to the food tests. I have tried out a good many of these cases and believe you can get satisfactory results with the food tests. The trouble comes in the misinterpretation of what reactions are obtained. These tests should not be considered negative until different sites of the body have been tested, until the patient has been tested at different times and until all methods of testing have been used with different dilutions of the extracts. When all these things are considered, I believe we get much better results following our skin tests than we do following the elimination tests.

DR. RAY M. BALYEAT (Oklahoma City, Okla.): I want to compliment Dr. Shelmire on his paper. He is very enthusiastic about this subject and has a right to be. About ten years ago I had the nerve to mention at one time in a meeting at Atlanta, Georgia, that there was a relationship between hay-fever, asthma, and eczema. Four or five doctors immediately jumped up and said that they did not believe any such relationship existed. For many years prior to that time we had noticed that asthma and hay-fever were interchangeable in linkage from the standpoint of inheritance, and also noticed that eczema kept creeping in and that apparently it was interchangeable in linkage with asthma and hay-fever, and if so we felt that it ought to be coming from one and the same source, namely, sensitization to some substance. One of my best friends in Oklahoma City, a dermatologist, very often argued with me concerning the possibility of eczema being allergic. Today, however, he does not question the fact. I have contended for many years that a patient with eczema whose family tree was saturated with allergic diseases—namely, asthma, hay-fever, urticaria, or migraine—should be thoroughly tested as a means of finding a possible etiologic factor of eczema.

One thing about elimination. So many times in eliminating foods from patients' diets we do not get good results; it is frequently due to the fact that thorough elimination is not done. Or, for a patient who has contact dermatitis, thorough elimination is not done. Frequently a patient is told to leave eggs out of his diet but is not instructed carefully to leave out everything that eggs go into; therefore, he continues to receive eggs, sometimes in large quantities.

In eczema and migraine, one has to be more careful about thorough elimination of foods to which a patient is sensitive than in asthma. Recently, for example, I had a patient from Arkansas who had eczema, who was very sensitive to eggs and knew it, and his family physician knew it. He was told to leave eggs and things that eggs go into out of his diet, but good results were not obtained. However, he found that he was drinking coffee that had been glazed in egg white and on changing the brand of coffee, he became free.

DR. BEDFORD SHELMIRE (closing): The recurrence of an arsenical exfoliative dermatitis in an individual who has not again received arsphenamine injections is due either to the ingestion of arsenic or the absorption of this drug by inhalation which is encountered occasionally in the mining and smelting of copper. I have observed an arsenical exfoliative dermatitis from the ingestion of Stovarsol tablets and a second case which was apparently caused from the arsenic of wall-paper.

In a third instance, a recurrence of an arsenical exfoliative dermatitis was caused from eating apples sprayed with arsenic as a pest control.

In answer to Dr. Bradley's question, fish, shellfoods, and strawberries are more likely to cause a acute urticara than an eczema.

I agree with Dr. Dutton that skin tests are often valuable in the determination of the causative factors in certain food eczemas. I still contend, however, that far more information can be obtained in such cases from properly followed elimination diets.

ASCITES

(Case Report)

(Presented at the Staff Meeting of the Good Samaritan Hospital, Phoenix, Ariz., March 27, 1933).

The patient was sent into the hospital by the Social Service Center on January 2, 1933, was discharged on January 27, and re-entered on February 9.

He was 39 years of age, and complained of intermittent swelling of both ankles and legs for a period of several months back, and swelling and discomfort of the abdomen of recent origin. He stated that he had the "flu" four weeks before admission, with onset of chills and fever, general body aches, and a respiratory infection. He took some phoid fever several years ago, but recovered without lieved in a few days, only to find that his abdomen continued to swell, and the swelling of legs grew rapidly worse, complicated with aching and itching sensation. The swelling of the legs, until the condition became acute, was present only at night, the legs being normal in size each morning after a night's rest in bed.

Family History: Father and mother are both dead in old age, cause unknown, one brother and two sisters now living and well.

Past History: Had measles, mumps, whooping cough, in childhood. Had a severe attack of typhoid fever sevral years ago, but recovered without complications. No surgical operations or accidents. Habits have been good.

Physical Examination: Patient does not appear acutely ill, but presents an enormous swelling of the abdomen, scrotum, both legs, and over the sacral region. No caput medusae present. The abdomen is flat in both flanks, and tympanitic in its central portion. No especial tenderness is present in any portion. The spleen is not palpable. The liver dullness is two inches higher than normal, and to percussion is smaller than normal. The skin is very dry, scaly, presents no eruptions or icterus. The eyes are clear, pupils are regular and react normally. Nose, throat, and mouth appear normal. Teeth are in good condition. No tumor masses are found in the neck or lymph glands. Lungs are clear in upper portions, but many moist rales are heard at the base, especially on the right side. The heart is pushed upward, until the apical impulse is seen and felt just under the nipple. No cardial enlargement can be percussed. The heart tones are of good quality, regular, average in rate, and no adventitious sounds are heard. The reflex, sensory and motor phenomena are normal.

Laboratory: Urine: straw, alkaline, sp. gr. 1010; no albumin, sugar, blood, pus or casts. R. B. C. 4,180,000; Hb. 20 per cent; W. B. C. 5,450; 68 per cent polys, 30 per cent monos, and 2 per cent eosinophiles. Wassermann negative. An x-ray of the chest did not show anything remarkable. There were, however, old fibrous infiltration densities extending into the upper and middle portions of the lung field on the left, and, to a lesser extent, on the right, with probably a small amount of fluid in both pleurae. During the first admission, two paracenteses of the abdomen were done to relieve the fluid present, and, in addition, large amounts of ammonium chloride were given daily, together with intravenous salygran, but very little response was obtained toward relieving the ascites. The patient continued to be badly distended with gas, even after paracentesis, and the bowels were very much constipated. He was discharged from the hospital on January 27th, unimproved; he was sent out to a convalescing home, and I did not see him again until his re-admission. The diagnosis made on the chart at the time of his first admission was portal obstruction with ascites, cause unknown, but probably atrophic cirrhosis.

When this patient returned to the hospital on Feb. 9, 1933, he had definitely lost ground. He had become icteric in the interval; the swelling of the abdomen was enormous; he was having attacks of chills, with high fever, and remittent daily. The fever returned each afternoon, but gradually subsided three days before death. The urine was still negative except for a slight trace of sugar. The white count was 9,500, with 69 per cent polys. There was considerable fluid in the right pleural cavity and, to a lesser extent, in the left. Fluid was withdrawn once during his second admission. The course, however, was continuously downhill until death on February 23. Pain was a conspicuous feature also during the second admission; patient complained of severe pain over the right kidney fossa, over the liver, epigastrium and in the right side of the neck and shoulder. I was not sure, the second admission, whether he had atrophic cirrhosis or carcinoma, because of the presence of fever and the rapid development of jaundice.

J. D. HAMER, M. D.

Discussion

At the time of first admission of this patient, the complaint was diagnosed as renal disease. After admission it was soon recognized as abdominal and circulatory and not a nephritic edema.

The outstanding findings of first admission were the edema of the lower extremities and ascites, with some evidence of pulmonary congestion. The liver seemed decreased in size. X-ray examination,

two weeks later, showed extension of pulmonary congestion but no evidence of any cause of pressure on the vena cava above the diaphragm. Paracentesis gave a clear ascitic fluid ,two days after admission. It was still clear, on paracentesis two weeks later. Three and a half weeks after admission, the patient was removed to a home for care. No jaundice had appeared at this time, but it was apparent that a portal obstruction was present. The cause was not clearly understood.

About two weeks after discharge the patient returned, this time with additional signs of jaundice and a right pleural effusion. He became gradually worse and died after being in hospital two weeks, in all, about seven and a half weeks after first admission.

The diagnosis originally revolved about the cause of the ascites.

Ascites may be referable to either general or local causes. Of the general cause, heart disease is the most common. Next in frequency come renal disease and cirrhosis of the liver. Of the local causes, chronic inflammation of the peritoneum, especially of the tuberculous type, is the most important. Abdominal tumors and metastatic neoplasms of the peritoneum may cause ascites, as may also obstruction, such as hepatic cirrhosis, syphilis, aneurysm and compression or obstruction of the inferior vena cava. More rarely ascites is seen in leukemia, pernicious anemia, and malaria.

Functionally, the circulatory system showed no pathology except the evening swelling of the legs and ankles. Anatomically, no cardiac pathology was demonstrated.

Neither was there evidence of renal involvement. The edema was restricted to the lower extremities, the urine examination was negative and the urine output was normal.

Because of the decrease in size of the liver, the abdominal ascites, the pains in the liver region and evidence of obstruction to venous drainage from the lower extremities, a tentative diagnosis of portal or atrophic cirrhosis was made. To further encourage this diagnosis, jaundice later appeared with an increase in the liver pain. It was about this time also that the pleuritic inflammation and exudate began to develop.

Tuberculous peritonitis could not be definitely ruled out, especially in presence of the pulmonary findings, although tuberculosis is a common complication of cirrhosis. A diagnostic point is the finding of a preponderance of lymphocytes in tuberculous ascites fluid and of endothelial cells in cirrhosis. This examination was not done on this case.

In a carcinomatous peritonitis, the signs of a primary growth in the stomach or elsewhere in the abdomen, was concealed by the extreme ascites and was not ruled out until jaundice appeared.

Ascites is common in carcinoma of the liver. Jaundice may occur in either, but if it is very deep, which here it was not, malignancy is the more likely diagnosis. Primary carcinoma of the liver can be distinguished from ordinary cirrhosis only by the findings of nodules in the liver.

Syphilis of the liver often stimulates portal cirrhosis. The Wassermann test here was negative and no evidence of specific lesions were found elsewhere in the body.

Banti's disease in the late stage is accompanied by cirrhosis of the liver with ascites. It is distinguished from portal cirrhosis by the preceding anemia and leukopenia and by the massive enlargement of the spleen.

The distinction from thrombosis of the portal vein is difficult, depending as it does mainly on the rapidity with which ascites sets in and recurs after tapping in portal thrombosis and the usually more acute course.

The diagnosis of portal or atrophic cirrhosis was corroborated at autopsy.

R. M. MATTS, M. D.

Autopsy Findings

Body of an adult male, revealed marked jaundice with decided edema of the lower extremities.

Thorax: Left pleural cavity shows no free fluid; lung reveals bronchopneumonia. Right pleural cavity reveals numerous adhesions over the entire lung with exception of the apex. There is a recent but definitely organized empyema cavity encapsulated and containing purulent fluid, located along the posterior mediastinal surface of the right lung.

Pericardial sac and heart negative. Heart is not enlarged. Mitral valve normal, except for slight fibrotic thickening. There is a slight atheroma formation of the ascending aorta.

Abdomen: A very large amount of free fluid in the peritoneal cavity. There are many old adhesions of intestines and omentum in the right iliac area. Appendix was found postcecal. Other portions of the intestines were negative, except for one small area of small intestines which showed injection of the serous coat.

Liver: Very much reduced in size; surface very nodular and the capsule thickened. The cut surface yellowish brown in color, of a nutmeg or lobulated appearance.

Spleen is greatly enlarged; capsule thickened. Cut surface of the spleen shows fibrosis and increased firmness of consistency.

Kidneys: Not enlarged. The capsules were stripped with some difficulty. Cortex was narrowed and revealed some yellow discoloration on a cut surface. Bladder normal and prostate not enlarged.

Anatomical Diagnosis: Cirrhosis of the liver with
portal obstruction and ascites;
Hydrothorax right side;
Recent right pleuritis;
Brochopneumonia, left lower lobe.

H. P. MILLS, M. D.
R. M. MATTS, M. D.

SPINAL FLUID

J. D. HAMER, M. D.
Phoenix, Ariz.

(Read at December, 1932, meeting of Staff of Good Samaritan Hospita, Phoenix, Ariz.)

This paper is for the purpose of discussing the various differential points from an analysis of the spinal fluid, that serve to help identify various inflammatory diseases of the central nervous system.

An analysis of the spinal fluid takes into consideration the initial pressure, the rise or fall of pressure on compression of the jugular vein, the appearance of the fluid, the cell count, the globulin test, the protein, sugar, chlorides and NPN expressed in mgm. per 100 cc. and the gold sol test. Normally the fluid has a pressure of 70 to 150, and even as high as 190 mm. of water, with a prompt rise by jugular pressure. Its appearance is clear, and it forms no clot. The cells average none to five, and even as high as ten, and the globulin test is negative. Protein is 15 to 45 normally, sugar 50 plus or minus, chlorides 720 to 750, and NPN 12 to 18 mgm. per 100 cc.

Meningismus, that condition that sometimes occurs, especially in children, during a course of pneumonia or other toxic infectious process, will show very little alteration in the findings of the spinal fluid. The pressure will be increased, and there may be a slight decrease in the protein and chlorides, while the sugar may be increased.

In brain abscess a pressure increase of the fluid will be found, while the appearance varies, depending whether there is a complete localization or if there is pus in the circulating fluid. The fluid may or may not clot. The cells are increased as a rule, and generally are of the poly type, predominating. Globulin may or may not be present. The protein is always slightly increased, the sugar normal or increased, the chlorides are normal, the NPN is normal and the gold sol test variable. Polys are always in excess, and if high fever and septicemia are present, the chlorides may fall.

The pressure is increased in acute syphilitic meningitis, the appearance varies, and a fibrin clot may form, the cells are chiefly monos, the globulin and the protein are increased, the sugar is normal or low, the chlorides are a little low, the NPN is normal, the gold sol is strongly suggestive, and the Wassermann is usually positive.

In purulent meningitis from any cause, the pressure is increased; the fluid is clear to purulent, even with clot formation; the cells are chiefly polys; the globulin and the protein are increased; the sugar and chlorides are low; the NPN is normal, and the gold sol is variable. In these cases, the sugar falls rapidly to under 10 mgms. Chlorides are rarely below 640 unless sepsis is present. The offending organism is usually found on the smear.

Tuberculous meningitis, anterior poliomyelitis, and encephalitis offer difficulties in diagnosis. The findings of tuberculous meningitis are, as a rule, as follows: increased pressure; opalescent appearance with formation of a fibrin web in the fluid on standing; cells, chiefly monos, are in excess of 100; globulin is increased; protein is above 100 mgm.; the sugar is normal or decreased, generally low; the chlorides are very low (under 650); the NPN is normal; and the gold sol is variable. In early cases and in infants polys are in excess early, while monos are in excess later. The sugar as a rule falls to 30 mgm., and the chlorides to below 650.

Cases of poliomyelitis will show increased pressure and slightly cloudy fluid which may form a web. Cells are increased, and globulin is slightly increased. Protein is slightly increased; sugar is normal or slightly increased; chlorides are normal or slightly decreased; NPN is normal, and the gold sol is variable. Cases of encephalitis will as a rule show normal pressure, normal appearance, normal or slight increase in cells—monos, increased or no globulin, normal or slight increase in protein, slight increase in sugar, normal chlorides and NPN. Gold sol is variable.

Further discussing the three last named diseases, the differential points in tubreculous meningitis are as follows: (1) The pressure is increased in tuberculous meningitis and poliomyelitis, and not in encephalitis. (2) A fibrin web is more apt to occur in tuberculous meningitis. (3) The number of cells is more in the two diseases than in encephalitis. However, encephalitis with a pleocytosis and great increase in globulin may not be easily distinguished from tuberculous meningitis, especially in the early course of the latter. (4) The presence of the tubercle bacillus will differentiate. (5) Sugar and chlorides are the real distinguishing features, since in tuberculous disease they are both low, while in the other diseases, there is no such change.

In anterior poliomyelitis, as stated before, the pressure is often increased, the cells always so, usually above 50, and maybe over 100. There may be an increase in the polys in the preparalytic stage, but these are rapidly replaced by the monos. Once paralysis sets in, the cell count gradually falls so that

it is within normal limits in two to three weeks. Coincident with the fall of the cell count, there is a progressive increase in the protein for about two weeks, then a return to normal. The sugar is normal when taken after a night's fast, but may be slightly elevated if examined during the day. This is also true of encephalitis and many other diseases, and is dependent upon the unusually prolonged alimentary hyperglycemia found in many acute infections. There is nothing specific about a high spinal fluid sugar in encephalitis.

Cases of encephalitis show inconstant findings in the spinal fluid. The cells are usually under 50, and chiefly monos. This disease is about the only inflammatory disease of the brain that does not show an increase in pressure. The protein increase is only slight. When there is a pleocytosis, globulin is usually increased even in early cases.

Recapitulating: In a differential analysis of the fluid of these three diseases, the very low sugar will help to differentiate tuberculous meningitis, while the chlorides in uncomplicated cases may be of value in differentiating poliomyelitis and encephalitis, since they appear to diminish in febrile stage of poliomyelitis, while in encephalitis, they are more nearly normal. In addition, in encephalitis the pressure is more nearly normal.

Like all matters pertaining to our discussion of diseases, the statements are made as generalities. One has to accept the spinal fluid findings as only part of the general analysis of the case, but with the few suggestions made above, and utilized, one may be better able to arrive at a diagnosis.

GOOD SAMARITAN HOSPITAL

Phoenix, Arizona

REPORT OF DEATHS IN FEBRUARY, 1933

Since this is my first appearance in this hospital as a critic of the monthly death records, I wish to make as clear as possible the principles which will guide me in making the criticisms. According to the American College of Surgeons, "An acceptable hospital chart consists of sufficient data, written in a sequence of events, to justify the diagnosis and treatment and warrant the end results." It is not my function to criticize the work of the physicians, but it is my function to criticize their manner of recording it. The patients are not seen by the critic, who has nothing to guide him except what is written on the record. In making my remarks, I should like to have it understood that they will be made according to the above principles in an absolutely impartial unprejudiced manner, without fear or favor, and entirely with the idea of helping the hospital records to become better. Any criticisms made at this meeting are directed at the doctors, and the doctors only. The hospital management, keenly interested in this matter, has made every effort to obtain good records, and when they have not done so it is due to the attitude of the doctors—call it reserve, indifference or hostility, as you like.

There were but six deaths in the hospital during the month of February, 1933, and two autopsies were obtained. It is to be hoped that this good record of 33⅓ per cent autopsies will be maintained or improved during months when the number of deaths is greater.

Record No. 15760: J. H., male, age 39, patient of Dr. Hamer. Clinical diagnosis: carcinoma of the liver or atrophic cirrhosis, ascites, jaundice. An autopsy was obtained and the anatomical diagnosis was cirrhosis of the liver and portal obstruction with acites. Right hydrothorax right pleurisy. Bronchopneumonia. left lower lobe. Chronic nephritis. The history, physical examination and progress notes, while quite brief, justify the diagnosis and treatment. The principal criticism I would make is the absence of a death note. This leaves the last formal clinical diagnosis recorded at the time of the second admission so that, if the doctor had changed his point of view somewhat during the second admission, there was no record of it. This case will be discussed at length later in the meeting.

Record No. 15795: E. B., male, age 38, patient of Dr. Hoskins. The clinical diagnosis was pulmonary tuberculosis, far advanced, active; and tuberculosis meningitis. The history is very brief covering but three lines. Physical examination describes signs indicative of diffuse bilateral pulmonary disease, but there is no basis whatever anywhere in the record for the diagnosis of meningitis. No autopsy was obtained.

Record No. 15746: P. W. D., male, age 39, patient of Dr. Hoskins. Clinical diagnosis: pulmonary tuberculosis, far advanced, active. This patient had been in this hospital from March 2, 1931, to March 13, 1931, at which time a diagnosis of empyema was made by means of the x-ray, and pus was aspirated. Examination of the record for the second admission in February, 1933, shows that the history and physical examination given at this time are identical with those recorded in 1931, and have evidently been copied from the old record. Since there are but two lines of progress notes in the present history, this leaves us for practical purposes without any information whatever about this patient since March, 1931, except that he entered the hospital and died there. This type of record, while technically meeting the requirements, can only be described as "eye-wash," and comes as far as possible from fulfilling the requirements of the American College of Surgeons.

Record No. 15740: E. M., female, age 65, patient of Dr. Kilgard. Clinical diagnosis: bilateral pneumonia. The record states that no history could be obtained, although according to the nurse's notes

the patient's daughter accompanied her to the hospital. The physical examination is adequate and justifies the diagnosis, although a blood pressure of 170 suggests that there may have been other lesions. The patient lived only twelve hours and no autopsy was obtained.

Record No. 15502: R. C., male, age 13, patient of Dr. C. C. Craig. The patient was a county case, referred to the hospital by Dr. Pearson. Dr. Kilgard signed the record and the patient was seen in consultation by Dr. C. B. Palmer and Dr. Johnson. Clinical diagnosis: staphylococcus septicemia, multiple abscesses, bronchopneumonia, otitis media. The septicemia apparently originated from a boil on the foot. The patient was in the hospital thirty-eight days. The history is brief but adequate. The physical examination is brief but appears to cover the important points. The progress notes give a very clear picture of the sequence of events and appear to indicate that the diagnosis was justified and the treatment rational. One gains the impression that the case was hopeless from the beginning. An autopsy was obtained. Anatomical diagnosis: drained abscess of the left foot (probably the initial lesion), drained abscess of the left hip, communicating with a large abscess within the pelvis. Many abscesses of the lungs and pleurae. Left pyonephrosis.

Record No. 15841: N. H., male, age 63, patient of Dr. Shupe and Dr. F. W. Brown. Clinical diagnosis: myocarditis and chronic nephritis. The history is adequate. The physical examination is rather superficial. The patient lived only 30 hours. No autopsy was obtained, in spite of great efforts by Dr. Matts, the interne. The diagnosis therefore has little that is objective to support it.

I should like to make two general observations about hospital records. In some cases the record is technically complete, and must be accepted by the hospital, but under close scrutiny it appears only as a record of the shortcomings of the doctor. This will usually be apparent in the resume given by the records committee, and if such matters are to be improved, the staff must do it.

DAVID M. DAVIS, M. D.

REPORT OF DEATHS IN MARCH, 1933.

In March there were eleven deaths and six autopsies. This is a very satisfactory increase in the number of autopsies over previous months and shows that more effort is being made in that respect, on the part of the physicians in charge of the cases. The records, with a few exceptions, are excellent.

Case 15883. Patient was admitted by Dr. Hoskins and lived only a few hours. There is no history, no physical or other data making it possible to reach any diagnosis. This record is absolutely worthless to the hospital and, if there were many of this character, I can see no object in keeping any records. Steps should be taken by the staff to prevent this sort of neglect.

Case 16040. The patient, a man of 20, was admitted by Dr. Pearson. A brief history states that the patient was ill a week and a half previously, with high fever, headache, and gradually ascending flaccid paralysis. Poliomyelitis was suspected. He lived three hours after admission and autopsy revealed a terminal pneumonia of both lungs. It is regrettable that the postmortem was not carried further to include the central nervous system, as the meager information given suggested a neurological condition; a postmortem lumbar puncture should have been made at least.

Case 15842. A Mexican woman, of 28, was in the hospital from February 22, to March 8. The record is quite complete and there are satisfactory progress notes by Dr. Kilgard, who apparently took care of the patient. She was delivered without a physician's care ten days previous to admission, and immediately took a douche. Soon afterward, she developed pain in the lower abdomen and a vaginal discharge. Examination showed rales throughout both lungs, a distended abdomen, with marked tenderness in the right lower quadrant. The temperature from admission to death, a matter of about two weeks, was septic. A week after her admission to the hospital, Dr. C. B. Palmer was called. He made a diagnosis of right tubo-ovarian abscess, and recommended an ice bag with operation as soon as verification of pus in the abscess could be made. He examined her six days later, found the same condition, and recommended drainage of the abscess. The abscess was opened one day before death. The autopsy showed terminal bilateral pneumonia, general peritonitis with multiple abscesses, and septic nephritis. This case certainly deserves more than passing comment. Some of the obvious questions are: (1) Did the puerperal sepsis probably follow the douche given after delivery? (2) Since a pelvic abscess was suspected at the time of admission, would the patient have had a better chance of recovery if she had been operated upon earlier?

Case 15913. A man of 25, under the care of Dr. Victor Randolph. He lived five days after admission and obviously suffered from septicemia and pyemia. It would be interesting to know whether an abscess of the lung was the original source of the wide-spread infection. The record is excellent and autopsy was obtained.

Case 15833. A woman of 32, was admitted by Dr. Bannister, with a diagnosis of acute intestinal obstruction. The history states that she was chronically constipated and that four days previously she took a cathartic; thereafter she vomited persistently and suffered from complete obstipation and pain in the lower abdomen. Operation revealed an obstruction at the sigmoid flexure. This was resected and an anastomosis performed. A section from the excised sigmoid was found to be adenocarcinoma. Following operation, the patient ran a septic temperature and died eight days later. Autopsy showed general peritonitis with subphrenic abscess, bilateral pleural effusion, and bronchopneumonia. The record is satisfactory.

Case 15961. A woman of 31, was in the hospital thirteen days before death. She was a patient of Drs. Sweek and French. She gave a history of abdominal cramps and the spitting up of blood six weeks before admission. She also had pain in the right lower quadrant and back and had lost about 20 pounds in weight. The history is too brief. The physical examination was essentially negative except for tenderness over the gallbladder region and over the lower abdomen. Pelvic examination revealed a tender mass the size of a lemon in the right adnexal region. At operation the abdominal organs were found to be normal. The tubes and appendix were excised. Sections showed chronic appendicitis and chronic salpingitis. Following the operation she did not do well, ran a high fever and developed signs of peritonitis. An ileostomy was then done with washing out of the bowel, but the patient promptly died. Autopsy showed a general peritonitis, apparently originating from the stump of the appendix, which was exuding fecal matter. The autopsy report makes the following statement: "Abdominal cavity: no free fluid. The entire gastrointestinal tract is greatly distended with flatus and the small bowel presents layered configuration. Loops of bowel are adherent by thick adhesions. There is a thick creamy-yellow pus, coming from the lower right iliac area. The cecum has dropped down into the pelvic area. An abscess formation of thick yellow pus is found in the area posterior to the cecum. The cecum is bound down by fibrous adhesions. Detaching the cecum, bowel contents exude from the recent operative appendiceal incision. The area of the cecum surrounding the opening is blue-black and necrotic." From the standpoint of the record, there are some interesting questions to be answered in this case. In the first place, did the general peritonitis originate from the stump of the appendix, or was there some focus? In the second place, what is the value of ileostomy for the treatment of paralytic ileus resulting from general peritonitis? In the third place, what was the indication for operation? This type of case should stimulate general scientific discussion.

Case 15899 was a man admitted by Dr. Kilgard in critical condition with bilateral pneumonia and left pleural effusion. Autopsy confirmed the diagnosis.

Case 16006 was a premature infant of 6½ months delivered by Dr. Jordan.

Case 15900 died on the day of admission. He was 50 years old, a patient of Dr. Purcell. From the sketchy history and physical examination, we assume that he had chronic pulmonary tuberculosis, that two days previously he began vomiting and became paralyzed on the left side of the body and the right side of the face. No autopsy was obtained.

Case 15930 was a baby delivered by Dr. Sharp. It died on the same day. Lumbar puncture showed a bloody spinal fluid. No definite cause for death was found from the autopsy. The labor was a long difficult one.

Case 15959 was a man of 21, injured in an automobile accident. He had multiple fracture of the extremties and cerebral injury. He lived two days, ran a high fever and leukocytosis. Dr. E. Payne Palmer was his physician and Dr. Greer was called in consultation. The record is satisfactory. No autopsy was obtained.

LOUIS B. BALDWIN, M. D.

PAIN IN LUMBAR REGION AND JAUNDICE

(Diagnostic Discussions)

ROBT. FLINN, M. D.
R. J. STROUD, M. D.
PALMER DYSART, M. D.
Phoenix, Ariz.

(Case Records of Massachusetts General Hospital, used by permission. Case 11171, from Boston M. and S. Jour., April 23, 1925).

Case Record

A Finnish laborer of thirty-six entered January 19 complaining of pain of five months' duration in the lumbar region and occasionally in the cervical region and jaundice of three weeks' duration. He had been in Massachusetts eleven years, but spoke no English. Although the history was taken through an interpreter it semed reliable. The patient did not know about the diseases of his childhood. He had always been strong and vigorous and had never been ill except for gnorrhea at twenty-had never been ill except for gonorrhea at twenty-occasional night sweats.

In April, nine months before admission, after spending the winter chopping in the woods, he developed a severe non-productive cough which lasted three weeks. He then began to have asthmatic attacks and was wheezy all the time, more so at night, so that he spent many nights sitting up. He could not run or walk fast without dyspnea. During the summer he did light work. In August the asthma improved but he began to have severe pain in the back, especially in the lumbar region, occasionally in the cervical back, with stiff neck, especially when he lay down. The severity of the pain obliged him to stop work. He had spent the five months' interval mostly in the house, exercising very little. Amateur massage gave only temporary relief. In August he noticed a small lump in the right axilla and soon afterwards a small superficial tumor near the ubilicus. Later others appeared in the neck and groins. All slowly increased in size. Three weeks before admission he became hoarse and jaundiced. For the past three days skin had itched. The pain in the back had grown steadily worse and kept him awake at night. He felt nauseated much of the time. January 9

after drinking coffee he vomited about a teaspoonful of bright red blood. He passed the week before admission in a hospital in a small town. He believed x-rays showed a "crack" in his spine and that his left lung was "not found at all." A year before admission he weighed 155 pounds, his best weight. He now weighed 125 pounds. He thought most of the loss had occurred in the past four months.

Examination showed a muscular man with evidence of loss of weight, marked jaundice, slight cyanosis, questionable pallor and marked hoarseness. The teeth were ill-kept. The tonsils were large and cryptic. Moderately hard glands were felt in both sides of the neck, a rather large superficial rounded hard mass in the right axilla and another just at the edge of the sternum, one gland in the right epitrochlear region and glands in both groins. The spine showed scoliosis. The apex impulse of the heart was seen and felt in the fifth space 9½ cm. to the left of the midsternum, one cm. outside the mid-clavicular line, corresponding with the left border of dullness. The great vessels appeared to be pushed somewhat to the left. There appeared to be some increase in the substernal dullness. It was however difficult to map out the left side of the heart and the area of substernal dullness because of flatness throughout the left chest. In the second left interspace 5 cm. from the midsternal line was a diastolic thrill. Pulsations were also seen at this space. The heart sounds had a chugging quality. At the pulmonic area was a sytolic murmur tailing off into a double pulmonic second, which was increased because of pressure of the heart against the chest wall. The blood pressure was 122/80. The right front was hyperresonant, with exaggerated breath sounds. The back showed dullness at the apex and bronchial breathing. The left chest showed flatness front and back, bronchial breathing at the top down to the second rib, below this diminished sounds, absent voice, diminished tactile fremitus and no breath sounds. The liver dullness extended eight to ten centimeters below the costal margin. The edge was not definitely felt. The reflexes were greater on the left than on the right. The pupils were normal.

The temperature was 97° to 100.4°, with a terminal rise to 104°. The pulse was 90 to 128, the respiration 20 to 31. The output of urine was normal, the specific gravity 1.020 to 1.010. There was a very light trace to a trace of albumin at both of two examinations, large amounts of bile and some leukocytes at both. The hemoglobin was 85 to 60 per cent., the leukocytes 16,000 to 11,700 polynclears 83 to 72 per cent.. reds 3,680,000, with slight achromia. At one examination an occasional cell showed basophilia. A Wassermann was negative. The bleding time was four minutes at one test. The clotting time was 19 to 4½ minutes, with calcium chlorid 12 minutes.

X-ray January 22 showed uniform dense dullness throughout practically the entire left chest. The heart shadow was entirely obliterated and appeared to be retracted to the left. None of it was visible to the right of the spine. The shadows of the ribs were faintly visible, better defined toward the periphery and the apical region. The apical region was slightly more radiant than the lower portion of the chest, but the lung markings were nowhere visible. Just above what appeared to be the outline of the diaphragm was a shadow of diminished density which suggested a small air space above the outline of the diaphragm and below the shadow of increased density in the chest. The right lung field was of unusual brilliancy throughout and there was no definite evidence of pathology on this side of the chest, although the brilliancy represented a compensatory emphysema. The outline of the diaphragm on the right side was normal, the excursion good. The excursion could not be visualized by fluoroscope. The eleventh and twelfth dorsal vertebrae were less dense than the adjoining vertebrae and had a somewhat mottled character. The intervertebral space was maintained. The bodies of the vertebrae appeared somewhat narrowed.

Discussion by Dr. Flinn

The significant facts in this patient's history are pain in the lumbar region for five months, a chronic asthma-like lung condition, a more or less generalized glandular enlargement and jaundice for three weeks.

I think that this man had a malignant condition of the left chest. Whether it was due to sarcoma, carcinoma or to lymphoblastoma I am unable to say. I am also unable to guess whether it was primary in the lung or bronchial tissue or secondary to some other malignant focus. It is conceivable that we are dealing with a case of lymphoblastoma, either Hodgkin's or lymphosarcoma which has caused a stenosis of the larger bronchi on the left with the production of a massive collapse. The pressure on the mediastinum could certainly cause sufficient obstruction to produce dilatations in the esophageal veins the rupture of which would account for the vomiting of blood. The terminal picture of esophageal obstruction could be due to the same condition.

The jaundice may be explained on the basis of a metastatic growth in the liver or to an enlargement of lymphatic glands in the portal fissure.

A large list of possible diagnoses could be submitted. However, after a careful consideration we should be where we started. The man probably died from Hodgkin's or maligmant disease of lung, probably carcinoma.

Discussion by Dr. R. J. Stroud

Here is a case where the duration in toto was nine months in a previously healthy man, a laborer, who first complained of non-productive cough, weakness, asthmatic signs, dyspnea and various signs of lung or heart pathology. Then for five months he had pain in the lumbar region and some in the cervical region and some more weakness and pain that stopped him from work. Then came development of nodules in various parts of the body, axilla

and groins, jaundice later, with hoarsness and going on to death with esophageal obstruction.

If it were not for the fact of great lumbar pain and x-ray showing rarefaction of the two lower dorsal vetrebrae the case could be considered as one of Hodgkin's disease with extensions to lymph glands, lung, liver and going on to death. The white cell count is that of a Hodgkin's type; he is a bit old but within the age, and the polynuclear cells are high with an occasional basophile of late blood manifestations which differ from an early basophilia and eosinophilia.

The left lung shows sings of massive trouble, sufficient to be a density suggesting neoplasm. The liver no doubt had a replacement of its cells by another form of tissue, and whatever it was either from the liver or lung, more possibly; it finally cut off the esophagus.

The lung is more affected secondarily from sarcoma than Hodgkin's disease. In fact the terminal thing is very often a lung involvement, and the therapy to help pain rather bears this out. The fact of a one sided process not particularly mediastinal suggests sarcoma. So we are between two horns of a dilema, in that two conditions may have caused the symptoms.

Yates and Raine, writing in Lewis' Practice of Surgery, are insistent that spindle celled sarcoma is Hodgkin's disease and lymphosarcoma also. The field of research has gradually swung the pendulum away from the fact of a true sarcoma to a non-neoplastic disease and Hodgkin's disease is gradually becoming more important in the diagnostic field of differntiation.

Whether Hodgkin's disease is neoplastic or infectious is another mooted question; that is, as differentiated from a true cancer is hard to tell. Lymphosarcoma is certainly no respecter of tissue as well as a true neoplasm, and invades any of the tissues as lung, liver, spleen, and the like readily.

Another thing to be considered is that the lung signs antedated the pain of the lower back by four months, and that may lead also to a different conclusion, although sarcoma may be present for some time before manifesting itself in pain or bone destruction that brings up an x-ray picture for diagnosis.

I remember a case we had here some time ago, when Hodgkin's disease was diagnosed and one of the prominent symptoms was a breathlessness and orthopnea later. This case had some inguinal adenitis and axillary signs also.

The terminal fever, blood picture, rapid involvement and all the other signs of an acute Hodgkin's disease rather make me lean to that picture, although sarcoma and even carcinoma could be present. The nodules are discrete which differentiate tuberculous glands, and syphilis is excluded by Wassermann test.

If the thing were primary in the lung, which the history rather suggests, carcinoma is more likely

(Continued on page 317)

THE NEW MEXICO MEDICAL SOCIETY

FIFTY-FIRST ANNUAL MEETING

Roswell, New Mexico

May 18-20, 1933.

First Day, May 18, 1933

The Fifty-first Annual Session of the New Mexico Medical Society convened at Roswell, New Mexico, where headquarters had been established in the Nickson Hotel, the business and scientific sessions being held in the auditorium of the Elks' Club.

Meeting of the Council

Called to order by the president, Dr. F. D. Vickers, (Deming), at 9 a. m., there were present: Ex-officio members, Drs. F. D. Vickers and L. B. Cohenour; Members: Drs. R. O. Brown (Santa Fe); C. A. Miller (Las Cruces) in place of C. W. Gerber; C. F. Milligan, (Clayton) in place of R. H. Miller, (Clovis), and W. T. Joyner, (Roswell).

Financial Report

Financial report of the Sceretary-Treasurer, Dr. L. B. Cohenour (Albuquerque) was read by him as folows:

Balance on hand at Annual Report, May 18, 1932	$1,525.69
Dues from 7 new members	35.00
Delinquent dues collected from 15 delinquent members	75.00
	$1,635.69
Annual dues for 1933 from 164 members	820.00
Total cash received to May 18, 1933	$2,455.69

Disbursements

Southwestern Medicine for 198 members for 1932	$396.00
Southwestern Medicine for 18 members	36.00
Treasurer's Bond for 1932-1933	5.00
Reporter for 1932 meeting (bal. due on fee)	100.00
Secretary's salary for 1931-1932	300.00
Mrs. E. D. McKinley, Alamogordo, N. M.—Refund	5.00
Gordon-Horton Co.— 300 Constitution and By Laws 500 Letter Heads 250 Stamped Envelopes	49.75
Commercial Service Co.—Adjust and clean typewriter	11.25
American Medical Association— Supplemental Directory for 1932	5.00
Gordon-Horton Co.—150 Letter Heads	3.15
Rightly Valiant typewriter ribbon	1.00
Western Union Telegraph Co	.65
Rio Grande Typewriter Co.— Repair typerwiter	1.00

Gordon-Horton Co.—300 3c Stamped Envelopes	20.15	
Reporter for 1933 meting (advance half fee)	87.50	
U. S. Government tax on checks	.40	
Total		$1,025.70
Balance on hand May 16, 1932		$1,429.99

Outstanding Indebtedness

Southwestern Medicine for 164 members for 1933	$ 328.00
Secretary's Salary for 1932-1933	300.00
Reporter for 1933 meeting (bal. fee)	87.50
Treasurer's bond for 1933-1934	5.00
Approximate total indebtedness	$ 720.50
Expected balance after all bills are paid	$ 709.49

Respectfully submitted,
(Signed) L. B. COHENOUR,
Secretary-Treasurer.

Motion by Dr. R. O. Brown (Santa Fe) that the Treasurer's report be accepted and approved as read, was seconded by Dr. C. A. Miller (Las Cruces) and carried.

The secretary, Dr. Cohenour, read the minutes of a special meeting of the Council held at Albuquerque, New Mexico, December 9, 1932, as follows:

"Special meeting of the Council called to order by Dr. F. D. Vickers, President, December 9, 1932, 3:00 p. m. Members present: Drs. C. B. Elliott, Raton; R O Brown, Santa Fe; Carl Mulky, Albuquerque; Chas W. Gerber, Las Cruces; F. D. Vickers, Deming; L. B. Cohenour, Albuquerque.

"The question of legislation for the good of the Society was dicussed and as no new legislation to be brought was known, it was deemed best to await appearance of same. The feasibility of presenting a Basic Science Law was discussed, but since the election of chiropractor Thaxton of Colfax county, it was deemed a poor time to present same. Motion by Dr. R. O. Brown and seconded by Dr. C. B. Elliott that since no known measures affecting the medical profession are pending there is no necessity for action. Motion carried. Meeting adjourned."

Dr. R. O. Brown (Santa Fe) reported that it was deemed best not to try to push a Basic Science bill, as there was not much chance to get it through. The chiropractors did not get any bills through, and while the osteopath bill passed, it could do no harm since it granted no more power than they have at present. It is requisite that they have two years premedical work, four years medical college, and a year's interneship.

Dr. W. T. Joyner (Roswell) asked if they were not given the right to practice medicine.

Dr. Brown replied that the bill had been gone over very carefully and there did not seem to be much change from the presnt law, though possibly narcotic licenses could be procured now by them under the new law; that the modern schools require a study of therapeutics, and a clause was put into the bill which made it non-retroactive, so that it would be necessary for present practitioners to take another examination before they could prescribe drugs.

The secretary, Dr. Cohenour, read a letter from Mrs. E. D. McKinley, Alamogordo, widow of Dr. McKinley, who died in May, 1932. Dr. McKinley had paid dues twice in 1932—on January 11, 1932, and again, through mistake, in April, 1932. Refund of one payment had been made, but now Mrs. McKinley requests refund also of the other payment.

Motion by Dr. R. O. Brown (Santa Fe) that no further refund be made and that the secretary be instructed to write a letter to Mrs. McKinley to the effect mentioned, explaining that it would establish a precedent if refund were made which should not be encouraged, was seconded by Dr. C. F. Milligan (Clayton) and carried.

No further business arising, adjournment took place at 9:45 a. m.

Meeting of the House of Delegates

Immediately following adjournment of the Council meeting, a meeting of the House of Delegates was held, there being present:

Dr. F. D. Vickers (Deming); Dr. L. B. Cohenour (Albuquerque); Dr. R. O. Brown (Santa Fe); Dr. C. A. Miller (Las Cruces); Dr. C. F. Milligan (Clayton); Dr. R. L. Bradley (Roswell); and Dr. W. T. Joyner (Roswell).

The secretary (Dr. Cohenour, Albuquerque), submitted and read his report of the affairs of the office, as follows;

"I hereby render a report of the affairs of the office of the Secretary-Treasurer for the term ending with this session. At the Santa Fe meeting May 19, 20 and 21, 1932, there were several members suspended for non-payment of dues and immediately following this fifteen members were reinstated. Seven new members were received through affiliation with their County Societies. Union county is delinquent because bank is on restricted basis. Members in the Society at this time (May 18, 1933), are as follows:

	1932	1933
Bernalillo County	43	46
Chavez County	22	18
Colfax County	17	16
Curry County	12	7
Dona Ana County	12	10
Eddy County	....	4
Grant County	11	9
Luna County	6	5
McKinley County	11	8
Santa Fe County	16	13
San Miguel County	9	6
Union County	9	5*
Members at Large	29	22
Total in good standing		164

*Bank on restricted basis, check returned.

No new applications for membership were re-

ceived. Active membership has been very hard to maintain because of the general depression. Deaths of seven members were noted as follows:

P. G. Cornish, Sr., Sep. 29, 1932, Albuquerque, N.M.
H. E. Whitacre, Dec. 12, 1932, Tularosa, N. M.
A. C. Grimes, Dec. 26, 1932, Clayton, N. M.
E. M. Fisher, Jan. 23, 1933, Roswell, N. M.
A. H. Vogt, April 1, 1933, Albuquerque, N. M.
W. E. Goodsell, April 4, 1933, Roswell, N. M.
H. M. Smith, April 11, 1933, Las Vegas, N. M.

Respectfully,
(Signed) L B COHENOUR.

Motion by Dr. R. O. Brown (Santa Fe), that the secretary's report be accepted as read, was seconded by Dr. C. A. Miller (Las Cruces), and carried.

The secretary (Dr. Cohenour, Albuquerque), read a letter recived from Mrs. James F. Percy, president Woman's Auxiliary A. M. A., requesting the passage of a resolution as follows:

"That the New Mexico Medical Society in recognition of the Woman's Auxiliary to the American Medical Association and of certain local Auxiliaries already organized in New Mexico, do hereby approve the organization of a Woman's Auxiliary to the New Mexico Medical Society and request the out-going president, Dr. F. D. Vickers(Deming) and the incoming president, Dr. H. A. Ingalls, (Roswell), to appoint a temporary president and secretary-treasurer to serve until a permanent State Auxiliary is organized."

Dr. W. T. Joyner (Roswell) made motion that the resolution as read be adopted. Seconded by Dr. R. L. Bradley (Roswell) and carried.

The secretary (Dr. Cohenour, Albuquerque), read a letter received from Dr. J. R. Van Atta (Albuquerque), in regard to the approval by the House of Delegates of the central committee appointed in connection with cancer control work.

The president (Dr. F. D. Vickers, Deming), explained that he had appointed a central committee in this connection, composed of:

Dr. J. R. Van Atta, Albuquerque, N. M., 3 years, chairman.
Dr. L. S. Peters, Albuquerque, N. M., 1 year,
Dr. J. W. Hannett, Albuquerque, N. M., 3 years,
Dr. R. O. Brown, Santa Fe, N. M., 3 years,
Dr. H. A. Ingalls Roswell, N. M., 2 years,

which action was not submitted to the House of Delegates for approval.

Motion by Dr. W. T. Joyner (Roswell) that the action of the president in appointing such committee be approved, was seconded by Dr. R. L. Bradley (Roswell), and carried.

The secretary (Dr. Cohenour, Albuquerque), read a letter received from the American Medical Association advising that Dr. J. W. Board of Clovis is not eligible to serve as alternate in the House of Delegates, and explained that the president had appointed Dr. J. R. Van Atta (Albuquerque) in Dr. Board's stead.

Dr. R. O. Brown (Santa Fe) made motion that the action of the president in regard to the appointment of Dr. J. R. Van Atta as alternate to attend sessions of the American Medical Association in 1933-1934, be approved. Seconded by Dr. W. T. Joyner (Roswell) and carried.

The secretary (Dr. Cohenour, Albuquerque), read a report from Dr. R. O. Brown (Santa Fe), in regard to the meeting of the Committeee on Rural Practice, at Albuquerque, N. M., November 9, which committee was composed of Drs. Pousma (Rehoboth), Brown (Santa Fe) and Earp (Santa Fe), outlining methods of providing medical care in isolated rural communities.

Motion by Dr. W. T. Joyner (Roswell) that recess be taken until 1 p. m., Friday, May 19th, was seconded by Dr. R. O. Brown, Santa Fe, and carried.

General Session

The meeting was formally opened at 10 a. m., when called to order by the president, Dr. F. D. Vickers (Deming).

After invocation by Rev. H. C. Henderson (Roswell), address of welcome was delivered by Honorable H. B. Smyrl, Mayor of Roswell, who expressed his pleasure and the pleasure of the citizens of Roswell at the presence of the Society, its members and guests, and assured his good wishes in the meetings to follow.

In response, on behalf of the Society, Dr. R. O. Brown (Santa Fe), announced that he was pinch-hitting for Dr. M. K. Wylder (Albuquerque) who was unavoidably detained on account of his wife's illness, and that all New Mexicans knew Roswell by its reputation for hospitality and graciousness and for making the stay of the visitor most pleasant, and that the Society members would endeavor to make their stay as pleasant for the citizens of Roswell as possible.

The incoming president, Dr. H. A. Ingalls (Roswell) was then introduced and expressed his pleasure and appreciation of the honor conferred upon him in being elected to the highest office in the medical activities of the State. Dr. Ingalls selected as the subject for his inaugural address, "The Doctor and the Public," (published in June issue of this journal.)

Following the presidential address, the scientific program was opened by Dr. J. W. Cathcart, El Paso, Texas, who presented a paper, illustrated with slides, on "Cancer of the Breast." Published in this issue of this journal).

Liberal discussion, opened by Dr. John T. Moore, Houston, Texas, was participated in by Dr. James Vance, El Paso, Texas, Dr. F. D. Vickers, Deming, N. M., Dr. M. B. Culpepper, Carlsbad, N. M., and closed by Dr. Cathcart.

Dr. James Vance, El Paso, Texas, in "Some Observations on Cesarean Section," gave an interesting summary on the value of this operation. (See paper elsewhere in this journal.)

Adjournment for luncheon followed, luncheon being served at the Nickson Hotel, where Col. J. D. Atwood, Roswell, N. M., delivered an address on

(Continued to page 320)

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PUBLIC HEALTH NOTES

J. ROSSLYN EARP, DR. P. H.
Director, New Mexico State Bureau of
Public Health.

AUDITORY DEFECTS

It is estimated that there are ten million people in this country whose hearing loss is sufficient to constitute a serious handicap socially, educationally and economically. Of this number more than one million, possibly as many as two million, are children.

The hard-of-hearing child is in danger of suffering grave social injustice. Unlike the totally deaf children, his defect is not obvious either to himself or to others. Often he does not realize that his hearing is poorer than that of others, either because he has lost it gradually or because he never had normal hearing. He does not complain of being deaf and his adult companions so obviosly resent being made to repeat instructions or remarks that the child soon learns not to ask for a repetition. The fact that the child talks loudly or in a hollow monotonous voice or perhaps turns one ear toward the speaker may be indications to the observant adult, but alas, so many adults do not observe. The child most likely takes himself at the valuation of his neighbors and believes that he is just plain stupid. The "intelligence" test is all too likely to confirm this erroneous impression. The child repeats grades, loses self-confidence, develops behavior disorders, becomes a problem at home and at school and an unnecessary burden upon public funds.

This country suffers an enormous economic and social loss from adult deaf persons who through lack of proper training facilities have become to a degree handicapped and dependent. The potential problem of the deaf and hard-of-hearing children threatens to be still more serious, due to the growing complexity of our daily life and the increasing demand of industry for the capable and alert. The waste of ability which threatens us now demands that we supply the facilities for thorough training of the deaf and hard of hearing.[1]

But first the defect must be discovered and, as the committee of the White House Conference remarks, "must be discovered early in life if the maximum treatment benefit is to be gained."

The New Mexico State Bureau of Public Health has acquired one of Western Electriic's 4-A audiometers and will lend this to any school (public, parochial or private) in New Mexico subject to the following conditions: (a) It must be used by a person who has experience in giving the test—preferably by the county public health nurse, (b) a record of the findings must be supplied on a form prescribed by the State Bureau for research purposes, and (c) a nominal charge will be made to cover the cost of replacing records.

In responding to the demands for loan of the audiometer, preference will be given to those counties which present a well organized plan for the use of this instrument in their district—so that loss of time in transporting the audiometer over long distances may be reduced to the minimum.

It is hoped that this program may be useful both in helping many children to an understanding of their problems and in providing us with more exact knowledge of the number, degree, and distribution of auditory defects in New Mexico. The most valuable preventive work will, however, still be done by the physicians in general practice whose trained observation and knowledge of pathology will enable them to discover auditory defects in children before they reach school age and to apply the indicated treatment both physical and psychological.

REFERENCE

1. Preliminary Committee Reports of the White House Conference on Child Health and Protection. Century Co., 1930, page 442.

SOUTHWESTERN MEETING IN EL PASO

The Annual Clinical Conference of the Medical and Surgical Association of the Southwest is only a little more than sixty days away. The Program Committee is at work formulating the program, details of which should be ready for publication next month. The chairman of the Program Committee is Dr. Willis W. Waite, who has had much experience in producing worth while programs. For several reasons, it has been decided to return to the original plan of the Association, which was to have the members of the entertaining Society (in this case the El Paso County Society) provide a program of clinics in the mornings, while the visiting members of the Association provide the papers for the afternoon programs.

It has been proposed to have three groups of papers: one on tuberculosis; one on thyroid diseases; and one on allergy. There may be a few papers accepted which are not definitely on these subjects. The first evening has been designated as "William Beaumont Hospital Evening," when the Association will be entertained by the staff of this hospital at a clinical meeting. The second evening will be given over to the annual dinner. The third evening will be left free for informal social gatherings.

Dr. F. D. Vickers, President of the Association, has appointed two important committees, who should report at the El Paso meeting. The Membership Committee is composed of Drs. J. M. Greer of Phoenix, Chairman; O. Egbert of El Paso, Meade Clyne of Tucson, Frank F. Milloy of Phoenix, and M. K. Wylder of Albuquerque. The Committee on Constitution Revision is composed of Drs. W. W. Watkins (Phoenix) Chairman, Willis W. Waite (El Paso) and J. R. Van Atta (Albuquerque).

JOHN WIX THOMAS

(Phoenix)

The passing of Dr. John Wix Thomas, of Phoenix, removed from the scene of professional activity one of the few remaining pioneer physicians of the state, and one of the most highly respected members of the profession. Dr. Thomas came to Phoenix in 1898 and practised for thirty-five years in Maricopa County, where he endeared himself to thousands of friends and hundreds of families as the typical old style family physician.

Dr. Thomas was born in southern Wisconsin in 1857 and graduated from the Chicago Homeopathic Medical College in 1891. His professional career was, therefore, started rather late in life, he being thirty-four years of age when he graduated in medicine. He practised several years in Rockford, Ill., and came to Phoenix primarily on account of the health of his oldest son (now Dr. Roy Thomas of Los Angeles). While he was known and sought out as the leading homeopathic physician of Arizona, he did not hold to this school of practice exclusively, but joined the ranks of regular medical practitioners, and was instrumental in healing the breach which existed in the early days in Arizona between the "allopaths" and the "homeopaths." As representative of the homeopathic school, he served many years on the Board of Medical Examiners, being secretary of the Board during his period of service. He was president of the Maricopa County Medical Society in 1907.

His avocational interests were in his church (Baptist) and in social reform. He was a student and advocate of Henry George's teachings of "Single Tax." He was for many years the leading figure in the old Prohibition Party of Arizona, one of the agencies which caused the state to outlaw the saloons in 1914.

Dr. Thomas was still in active practice at the age of 76, and was on vacation in California, when he contracted a virulent type of lobar pneumonia, to which he succumbed in the Good Samaritan Hospital in Los Angeles on August 30th. Funeral services were held in Los Angeles for the family and immediate friends, with a public funeral in the First Baptist Church in Phoenix, attended by hundreds of friends, professional confreres, and sorrowing patients.

MONTIE C. COMER

(Tucson)

The untimely death of Dr. Montie C. Comer, of Tucson, in a San Francisco hospital, on July 25th, came as a shock to his many friends and professional confreres. He was in the hospital for a hernia operation and was recovering satisfactorily from this and seemed to be out of danger, when death came suddenly from a cardiovascular accident.

Dr. Comer was born in 1885, being only forty-eight years old. He graduated from the Kentucky School of Medicine in 1907. He came to Tucson in 1924, to be associated with the Thomas-Davis Clinic as the specialist in eye, ear, nose and throat. His skill

and high professional attainments had become recognized throughout the southwest. He was usually present at medical meetings, reading papers of great interest and practical importance. He will be missed from the circle of the Pima County Medical Society.

PAIN IN LUMBAR REGION AND JAUNDICE

(Continued from page 312)

than sarcoma because primary carcinoma in the lung is more common. But the age incidence is that of sarcoma rather than carcinoma. The glands show up late differing from the usual thing in Hodgkin's disease when they seemingly are the first hint.

There is nothing in the kidney examination to suggest hypernephroma, which of course does not have to start in a kidney anyhow. That again brings up the question of a neoplastic disease as against a Hodgkin's disease. I would like to have known what an x-ray would have done to this growth.

Diagnosis: Hodgkin's disease.

Discussion by Dr. Palmer Dysart

This case presents all the ear marks of a Hodgkin's disease, the only thing lacking being the microscopical evidence of a biopsy.

Hodgkin's disease is characterized by painless, progressive enlargement of the lymph nodes, often accompanied by fever, and later by cachexia and anemia. It is not an infrequent disease. Eight or ten cases out of 500 autopsies in six months were seen during my service in pathology at the Cook County Hospital. The cause of Hodgkin's disease is unknown, but it is thought to be an infectious granuloma and many cases start out with infections about the teeth or tonsils, both of which were present in this case.

The symptoms and findings in this case are due to growth of the lymph node tumors in the mediastinum, producing cough, dyspnea, asthma, and terminally, obstruction of the esophagus; tumors in the cervical region producing hoarseness, axillae, inguinal region, lumbar regions producing pain by impingement upon the lumbar and sacral nerves. Jaundice of an obstructive type, followed enlargement of the lymphatic structure about the biliary passages and infiltration of the liver itself. Some of the liver enlargement, however, must be due to passive congestion resulting from pressure upon the great vessels, and disturbance of cardiac function. A pleural effusion of the left side with perhaps some infiltration of the lung itself occurred. The temperature was only moderately elevated, until the terminal rise of 104, which probably accompanied a pneumonia. Loss of thirty pounds of weight had occurred during the past four months. A marked anemia was present with a red count of 3,680,000 and hemoglobin of 85 to 60 pe rcent. Leukocytosis of 16,000 to 11,700 with 83 to 70 per cent polys was present, but there is no distinctive blood picture except usually a rise in platelets.

Differential diagnosis is to be made on blood count and biopsy, differentiating it from lymphosarcoma, lymphatic leukemia and tuberculosis.

Diagnosis: Hodgkin's disease.

Pathological Discussion by Dr. Richardson (Boston)

CLINICAL DIAGNOSIS (From Hospital Record):
Malignant lymphoma.
Tracheal obstruction.

DR. RICHARD C. CABOT'S DIAGNOSIS:
Malignant disease, probably lymphoma, of the left lung, involving the mediastinum and the biliary passages, with compression of the re-

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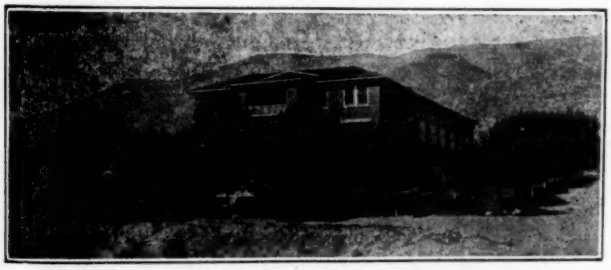

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spiratory structures and of the common bile duct.

ANATOMICAL DIAGNOSIS:

Carcinoma of the pancreas with metastases in the retroperitoneal, mesenteric, bronchial, tracheal and axillary lymph-glands, and in lungs, adrenals, kidneys and abdominal wall and skull.

Hydrothorax, left

Slight hydropericardium.

Compression atelectasis, left lung.

Purulent bronchitis, left.

Edema of right lung.

Icterus.

Operation wound.

Slightly defective closure of the foramen ovale.

DR. RICHARDSON: The dura showed a yellowish tinge, presumably icterus. The pia was wet. On the outer surface of the skull, the posterior parietal portion, a little to the right of the median line, there was a small grayish area. Cross section showed a small mass which looked like new growth tissue. There was some necrosis, and the mass extended into and nearly through the skull. It turned out to be a mass of metastatic new growth tissue. The brain tissue was wet but otherwise negative.

The skin, mucous membranes and conjunctivae showed a greenish yellow tinge.

The abdomen was not distended. About six cm. above the umbilicus was a recently healed wound which rested over a small new growth plaque. A plaque of new growth in the skull and one in the anterior abdominal wall suggests an adrenal tumor. In the right axilla was an ovoid mass six by four cm. of new growth tissue, and on each side of it several firm masses rounding up under the skin.

In the peritoneal cavity there was a few cubic centimeters of bile-stained fluid. The gastrointestinal tract was negative except that the esophagus was pressed upon by a mass of new growth tissue in the mediastinum. Two or three mesenteric glands toward the cecum were enlarged and infiltrated with new growth. The retroperitoneal glands along the aorta and about the pancreas were enlarged and infiltrated with new growth tissue. The liver was slightly enlarged, the margin two centimeters below the costal border. The diaphragm on the right was at the fourth rib, on the left at the fifth rib.

The right pleural cavity contained a small amount of thin brownish clear fluid. The left cavity was about two-thirds full, 1500 c.c. or more of fluid. There were no pleural adhesions on the right. The left lung about midway in the region of the root was adherent to a mass of new growth.

The trachea and left bronchi contained much mucopurulent material. The right bronchi were negative. So far this process was all on the left side except for the metastases in the glands. A mediastinal new growth which we will speak of in a minute pressed on the trachea in the region of its upper part and at the junction of the trachea

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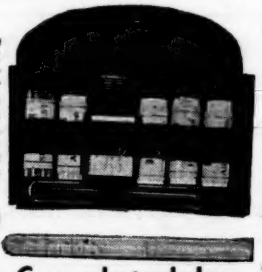

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and the left bronchus. The bronchial glands on the left were markedly enlarged and infiltrated with new growth tissue, but on the right there were only a few of them and they were smaller. The glands along the trachea and in the region of the cervical glands presented as a fused mass of new growth tissue. They nearly encircled the trachea at the upper end, squeezing it as well as the great vessels leading to and from the heart. There was considerable pressure on the arch and on the descending thoracic portion of the aorta in this region.

On the left side the new growth tissue extended along from the seventh to the tenth thoracic vertebrae and down along the ribs for a short distance, but section of the vertebrae and the ribs failed to show any invasion.

The left lung was moderately collapsed. The mediastinal new growth extended along the root of the lung and irregularly into it for varying distances up to seven or eight centimeters, so that roughly the tumor extended from the mass in the upper mediastinum down along the root of the lung and out into the lung for some distance. This new growth squeezed the bronchi in the region, practically occluding some of them. The bronchi in this region contained mucopus in places. The lung tissue away from the new growth was spongy to leathery and in places showed a little edema. No definite areas of pneumonia were made out. The

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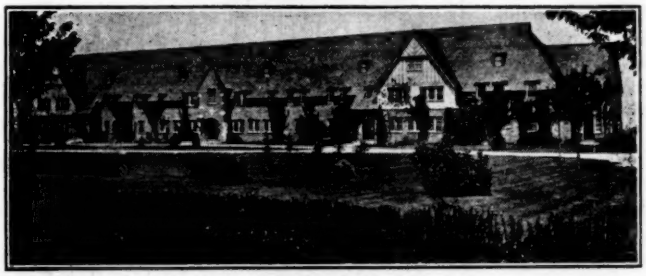

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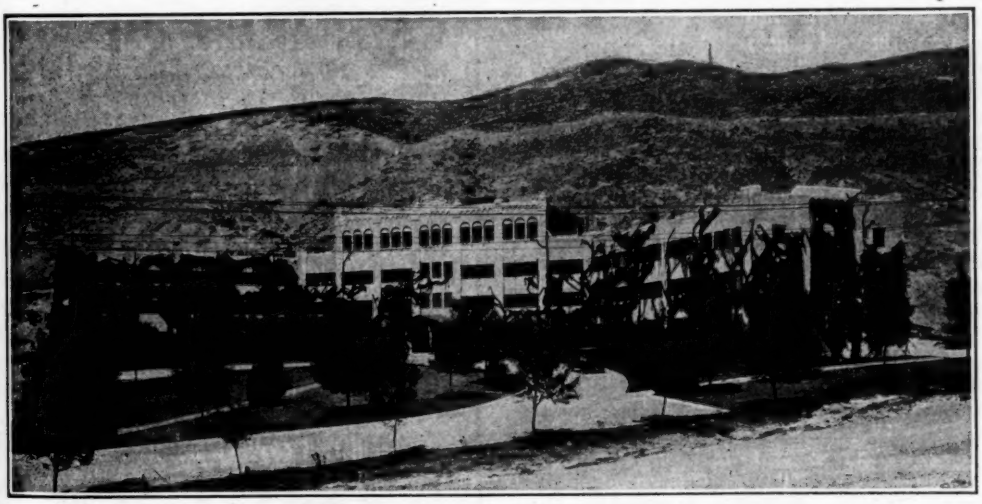

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right lung was somewhat emphysematous and showed considerable edema. No new growth was found in the right lung.

The pericardium contained about 200 c.c. of thin clear fluid and the epicardium over the left auricle presented a small metastasis one and a half by one cm. The epicardium over the left ventricle also, just beneath this, showed two additional metastatic plaques. The heart weighed 315 grams and showed no particular disturbance in its regional anatomy. The right ventricular wall measured three millimeters, the left ten. The cavities showed considerable dilatation on the right. The valves were negative. There was a slightly defective closure of the foramen ovale. The circulatory apparatus elsewhere was negative.

The liver weighed 2310 grams, moderately enlarged, smooth surface, the tissue negative except that it was bile-stained. No metastases were found. The bile ducts, hepatic and common, were dilated up to three centimeters. Opening the ducts showed a short distance above the ampulla that the common duct and the duct of Wirsung were involved in a mass of new growth tissue apparently in the head of the pancreas. That squeezed the ducts and produced the icterus. The pancreas was markedly enlarged and showed here and there smaller and larger masses of new growth tissue scattered through the organ. The retroperitoneal glands along the pancreas were considerably enlarged and infiltrated with new growth tissue, and closely applied to the pancreas.

The spleen weighed 197 grams, the surface smooth, the tissue plump and a little soft, otherwise negative.

In the situation of each adrenal there was a large ovoid mass nine by six centimeters. It consisted of new growth tissue with here and there hints of adrenal tissue.

The kidneys weighed 410 grams. The capsules came off, but there were smaller and larger grayish rounded areas, the outer surfaces of metastatic growths in the kidneys. The kidney tissue was otherwise negative.

In general the findings here would make one think of adrenal tumor, and there is new growth in the adrenals, but from the histological character it was felt that more probably it arose from the pancreas with metastases in the glands, the abdominal wall, the skull, and so on.

THE NEW MEXICO MEDICAL SOCIETY

(Continued from page 314)

Economic Problems, dealing with World war debts and methods of refunding necessary to be worked out.

(Concluded in next issue)

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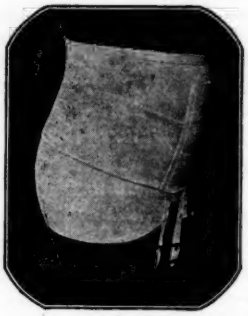

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